DOCUMENT RESUME

ED 138 826 08 CE 011 215

AUTHOR Kershner, Keith M.; Blair, Mark W.
TITLE Career Education Program, 1974-1975. Final Evaluation Report.
INSTITUTION Research for Better Schools, Inc., Philadelphia, Pa.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE 26 Sep 75
CONTRACT NE-C-004-0011
NOTE 114p.; For a related document see CE 011 214 ; Tables may be marginally legible due to small print

EDRS PRICE MF-$0.83 HC-$6.01 Plus Postage.
DESCRIPTORS Academic Achievement; *Basic Skills; Career Education; *Career Exploration; *Daily Living Skills; Data Analysis; Educational Objectives; Educational Research; Occupational Guidance; *Program Effectiveness; Program Evaluation; Secondary Education; Skill Development; Student Attitudes; *Student Development; *Vocational Development
IDENTIFIERS Pennsylvania; *Research for Better Schools

ABSTRACT

The third year (1974-1975) of the Research for Better Schools (RBS) program was evaluated using five groups of students totaling 259 experimental students and 109 comparison students. These groups were administered a series of instruments on a pretest-posttest schedule in order to measure student performance. The RBS program provides secondary school students with cognitive skills, career experiences, and personal perspectives which aid in the selection and pursuit of adult life goals. Three principal instructional components employed to achieve program goals are career exploration and specialization, career guidance, and basic skills. Results of the study include the following: (1) Data analysis supported program effectiveness in the career knowledge component of career skills over a 2-year period. (2) Both first and second year experimental students showed significant increases in attitudes toward learning environments. (3) The experimental students' posttest levels were found to be significantly higher than the control students' scores. (4) The experimental program was not demonstrated to offer advantages in the provision of basic skills instruction. A series of recommendations were addressed to the continuance of successful program elements, the review of identified problem areas, and the investigation of indicated research and evaluation issues. Supplementary information to the report is contained in a separate volume. (TA)

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ED138826

CAREER EDUCATION PROGRAM

1974 - 1975

FINAL EVALUATION REPORT

September 26, 1975

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Career Education Program

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RESEARCH FOR BETTER SCHOOLS

CAREER EDUCATION PROGRAM

1974 - 1975

FINAL EVALUATION REPORT

EXECUTIVE SUMMARY

The RBS program has been developed, implemented, and tested as a result of the National Institute of Education's initiative in sponsoring Experience-Based Career Education. The program provides secondary school students with cognitive skills, career experiences, and personal perspectives which aid in the selection and pursuit of adult life goals. Three principal instructional components are employed to achieve the program goals; they are Career Exploration and Specialization, Career Guidance, and Basic Skills. Students participate in activities conducted at the sites of various community resources and at a central facility within a large urban high school. The 1974-1975 school term was the third implementation year for RBS Career Education.

Five groups of students were involved in the program evaluation. Two of these, E1 and C1, were experimental and control groups randomly selected for the 1974-1975 program. The E2 and C2 groups were experimental and comparison groups which had been non-randomly selected for the previous year's evaluation and returned for the current year. The final group, E3, was designated to accommodate new students selected during 1974-1975 to replace program dropouts. The two experimental groups represented students in the program for their first and second years. The

two control groups represented students enrolled in the high school curriculum during the same time, thus enabling the comparison of program and non-program outcomes. The third experimental group was used only in descriptive analyses. In all, there were 259 experimental students and 109 comparison students involved in the program evaluation.

The composition of these student groups was analyzed with regard to a series of demographic, aspirational, and achievement characteristics. The groups were found to be similar in most respects.

The bulk of the students were eleventh graders with smaller representations from the ninth, tenth, and twelfth grades. There were fewer males than females, and fewer Whites than Blacks in the student samples.

The most popular reasons for applying to the RBS Career Education Program were to find out about careers, to receive job training, to receive counseling about what to do after high school and to get help in finding a job.

Students depicted most parents as having some high school training or a high school diploma. Most fathers were indicated to be skilled or semi-skilled workers. The largest group of mothers were in the homemaker category. Regarding the students themselves, a large majority planned to graduate from high school. After that, most anticipated attending a four-year college, full-time employment, or vocational - technical school. Specific occupational aspirations were varied, but many suggested the use of further training and some entrepreneurial interest. In general, the plans indicated by students exceeded the ambitions reportedly realized by their parents.

In terms of academic achievement as measured by standardized tests of basic skills, the average grade equivalents ranged from the sixth through the ninth grade level. Such averages are well below the desirable levels as expressed by national norms.

These descriptions of student samples included all students who had been involved in the evaluation throughout 1974-1975. Another contingent of students was not represented because they dropped out of the student groups during the course of the year. This attrition phenomenon was studied separately, and it yielded interesting findings.

Experimental group attrition was found to be much lower during 1974-1975 than in previous years. This was probably due to the required pre-enrollment sessions which were introduced into the program application process.

The school dropout rates for experimental group members were significantly lower than the rates for control and comparison groups. This finding suggested that exposure to the program may affect school dropout trends.

It was observed that group attrition early in the year was substantial, particularly among the experimental groups. This suggested that actual experience in the program may have differed from the expectations generated during the recruitment process.

Finally, analyses comparing the retained and eliminated students on a series of characteristics failed to isolate any consistent factors related to attrition. These results suggested the need for further study of the students involved in attrition using a broader selection of variables.

The samples of eliminated students included in the attrition study were not used in analyses of student affects. The later analyses focused on the two experimental and two control groups who participated in the evaluation throughout the year. These groups were administered a series of instruments on a pretest-posttest schedule in order to measure student performance. The instruments were as follows:

1. Career Maturity Inventory (CMI)
2. Career Attitude Scale (CAS)
3. Self-Directed Search (SDS)
4. Assessment of Student Attitudes Scale (ASA)
5. Berger Acceptance of Self Scale (BASS)
6. Comprehensive Tests of Basic Skills (CTBS)

An additional instrument, the Student Demographic Data Questionnaire (SDQ) was given once to gather demographic, background, and personal planning information.

The instruments provided student performance scores related to the three areas of program emphasis: career skills, life skills, and basic skills. Within each area there were two categories of hypothesized effects. One treated gains within the experimental groups; the other was concerned with the performance of the experimental groups relative to the control groups. Each hypothesis was tested using both first year and second year student data. Within group hypotheses were directed toward E1 vs. C1 and E2 vs. C2 results. The E1 and C1 groups represented first year effects; the E2 and C2 groups represented second year effects. The hypothesized effects were tested through standard statistical procedures including t-tests, chi-square analyses, and analyses of variance and covariance.

The career skills area was represented by hypothesized development in career knowledge and career maturity. Each of these two career skills was tested in four ways: first year experimental group growth (E1), second year experimental growth (E2), first year comparative performance (E1 vs. C1), and second year comparative performance (E2 vs. C2).

In career knowledge both experimental groups demonstrated significant growth over the course of the year. In the second year, this growth reached a magnitude sufficient to produce a significant superiority of the experimental students over their control counterparts.

In career maturity there was no evidence of significant development within the experimental groups. However, due to control group losses in maturity over time, there was evidence of significant first and second year experimental group superiority at the end of the year.

These results clearly supported program effectiveness in the career knowledge component of career skills. In the career maturity component experimental growth was not demonstrated, but control group regression resulted in superior year-end performance by the experimental groups.

The life skills area was represented by hypothesized development in attitudes toward learning environments and in self-concept. Effects in each of these representative life skills were tested within the experimental groups and comparing the experimental groups with the control groups.

Both first year and second year experimental students showed significant increases in attitudes toward learning environments over the year. The experimental students' posttest levels were also found to be significantly higher than the control students' scores.

Regarding perception of self, the two measures employed yielded inconsistent results. For the experimental groups, changes in perceived competency did occur, but self-concept did not increase. In experimental vs. control comparisons, while second year experimental students demonstrated superior self-concept, other tests of intended effects produced divergent results.

These life skills results strongly supported the program's efficacy in learning-related attitudes. However, the measures of perceived competency and self-concept were found difficult to interpret. Although they offered some support for the program, it was apparent that further research would be required to assess its meaning.

The basic skills area was tested using portions of a standardized achievement battery. Again, growth within the experimental groups and comparative experimental-control development were hypothesized.

Both first and second year experimental students showed some significant growth over the year, but not in all areas tested. Comparative analyses did not indicate significant superiority of the experimental students over the controls in any test employed. Thus, the experimental program was not demonstrated to offer advantages in the provision of basic skills instruction.

A series of recommendations was derived from the results of the 1974-1975 RBS Career Education Program evaluation. These recommendations were addressed to the continuance of successful program elements, the review of identified problem areas, and the investigation of indicated research and evaluation issues.

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I. INTRODUCTION

The U.S. Office of Education and the National Institute of Education have identified educational problems related to successful career selection and pursuit. These problems include an asserted gap between traditional school experience and preparation for adult vocational life, perceived deficiencies in the career awareness of youth, and inadequate information and strategies for making rational, self-determined career choices. In an effort to remediate these problems the Federal government has sponsored the development of career education programs.

A prototype career education program has been developed, implemented and tested in Philadelphia by Research for Better Schools (RBS). The RBS program has been designed to provide secondary school students with cognitive skills, career experiences, and personal perspectives which will aid in their selection and pursuit of adult life goals. The program utilizes self-paced learning resources, direct participation in vocational environments, classroom experiences, and adult-youth interpersonal interactions to achieve its ends. It is hypothesized that this approach, focusing on individualization and community-based experiences, produces educational effects that are superior to approaches utilizing a traditional classroom structure. Closer cooperation between the education and business communities is also an intended longer range result since successful implementation of the program involves the establishment of continuing cooperation among representatives of these communities.

The RBS Career Education Program has been under development for four years and has completed its third year of operation with secondary

school students. The RBS program consists of three principal instructional components: Career Exploration and Specialization, Career Guidance, and Basic Skills.

For Career Exploration, students have available a series of approximately 20 clusters of resource sites including Allied Health, Clerical and Administrative, Construction, Law and Justice, Natural Resources, Trades, and Transportation. Approximately 80 related companies have volunteered their combined resources to plan and conduct cluster programs. Examples of companies and agencies participating in the Philadelphia program are: Lankenau Hospital, Bell of Pennsylvania, Pierce Jr. College, ARCO, Continental Bank, Philadelphia District Attorney's Office, Acme Markets, and American Airlines. Each cluster program is developed jointly by representatives of the participating resource sites and RBS. All programs are conducted by employees of the participating companies and agencies. For each 12 week academic quarter students select one of the available clusters for their Career Exploration experience. They are involved in cluster programs at resource sites for one full day each week. These first-hand experiences are designed to allow students to learn about the economic community, to test their own vocational interests, and to obtain information for their career planning. Activities within the cluster programs are varied. They typically may include presentations, tours, interactions with employees, try-outs at different jobs, and group discussions of experiences.

After students have made a tentative career choice, they may elect to participate in one of the Career Specializations. These are programs designed for individual students to investigate a single job or resource

site in depth. Objectives are defined for each specialization, and activities are constructed to pursue those objectives. Career Specializations take place at the resource sites and may last from a few weeks to several months. Together with Career Explorations, they constitute the student's direct experience in vocational environments.

Career Guidance is the second major instructional component in the RBS Career Education Program. This component is viewed as crucial in helping students to understand themselves, to assimilate their experiences in the program, and to understand career choice within the context of their own values. In order to accomplish this, two activities are provided. First, students participate in small group guidance sessions which meet weekly for an hour and a half. In these sessions an eclectic curriculum which draws upon resource site experiences is employed to promote self-exploration, values clarification, life skills, motivation to learn, career planning, and integration of program activities. Second, students have individual counseling sessions scheduled on the basis of need. Since the counselors also coordinate Career Exploration and Specialization activities and spend time on the resource sites, students are afforded the opportunity for extensive interaction with counseling personnel.

The third principal instructional component is Basic Skills. This has been operationalized as an Academic Resource Center which focuses on the development of communications and mathematics skills. A systematic individualized approach is employed using a wide variety of materials and resources to construct learning programs for each student. Students are scheduled into the center for six hours per week. Strengths and weaknesses

are continuously diagnosed, and the students work through individually prescribed programs at their own rate with trained teachers available to monitor progress and help as needs arise. Activities in the Academic Resource Center are related to other program elements where appropriate and possible.

These three instructional components constitute the essence of the RBS Career Education Program. They are characteristically individualized and responsive to student needs. The program has been designed to maximize student development and choice within an operational structure which can effectively serve a large number of students at reasonable costs.

The RBS program has served students in Philadelphia for three school years. It has expanded from an enrollment of 100 the first year to 275 students during the current term. For the 1974-1975 school year the program was housed in a large urban high school. This central facility provided space for the Academic Resource Center, counseling functions, conferences, and staff offices. Career Exploration and Specialization activities were conducted at the various resource sites.

The evaluation of the RBS Career Education Program has been a developmental effort which reflects the status of the project itself. During the first year of operations (1972-1973), the evaluation activities were predominantly formative in nature. Data were collected on the extent of implementation, perceptions of participants, and student progress on several standardized tests. No comparison groups were available to establish external standards or estimate relative effects. Instrument development was launched at this point.

During the second year (1973-1974), it was possible to establish non-equivalent control groups in a quasi-experimental design. Formative

issues identified during the first year were studied with enhanced precision. The instrument development effort yielded several measures which could be applied with reasonable confidence. The summative analysis of program effects assumed greater importance with the availability of improved instrumentation and comparative subject groups.

During the current year of operations (1974-1975), a true experimental design has been achieved through the random assignment of applicants to experimental and control groups. An external summative evaluation has also been instituted to supplement the heretofore exclusively internal evaluation effort.

The principle evaluation activities have included constructing and maintaining the student samples, preparing and implementing the evaluation design, selecting and developing instrumentation, designing and maintaining data systems, planning and performing analyses, reporting on results, and maintaining liaison with the external evaluation group and the funding agency. The evaluation emphasis has been on student outcomes, with most activities contributing to the determination of such effects.

The remainder of this report has been organized in a research format to allow a clear presentation of the findings on student outcomes. Procedural sections include Student Samples, Student Attrition, Instruments, and Evaluation Design. In the Results section, hypothesized student effects are tested using designated statistical procedures. The concluding section, Summary and Recommendations, capsulizes the significance of the findings.

This report has thus been intended to present the RBS Career Education Program findings for 1974-1975 in a concise research format.

The non-technical reader may find several portions to be overly burdensome. For this reason the most important elements of each section have been expressed in the Summary and Recommendations without technical language. Evaluation information supplementary to this report, presenting more detail in several areas, has been prepared. A "third-party" evaluation of the program has also been completed. These additional materials are available from Research for Better Schools and the funding agency.

II. STUDENT SAMPLES

During the 1974-1975 academic year, ninth, tenth, eleventh, and twelfth grade students participated in the RBS Career Education Program. Three experimental and two control groups were identified for the evaluation of the program. The groups were designated as follows:

1. E1 - randomly selected true experimental group
2. C1 - randomly selected true control group
3. E2 - non-randomly selected returning experimental group
4. C2 - non-equivalent returning control group
5. E3 - non-randomly selected new experimentals

Groups E1 and C1 were randomly selected from the pool of applicants for the 1974-1975 program. Group E2 consisted of students who had been in the 1973-1974 program and had elected to continue for another year. The C2 group had been selected randomly during 1973-1974 from the total enrollment of the sending school to serve as a non-equivalent comparison group for the E2 sample. The E1 and C1 groups were maintained to study first year effects. The E2 and C2 groups were used to investigate second year effects. The E3 group was designed to accommodate any students who might be added to the program during the year; this group was maintained principally for descriptive use since the composition was flexible and time in the program varied from student to student.

Demographic characteristics were collected to provide basic information on the total range of students available for the evaluation of the 1974-1975 RBS Career Education Program. The characteristics selected were age, grade level, sex, race, reasons for enrollment in the program,

parental occupation and educational level, plans to graduate, post-secondary plans, and achievement level. These data are presented for all student groups as they were constituted at the end of the school year.

Age

Student age was computed as of May 31, 1975. These data were available only for the E1, E2, and C1 groups. The average age of the E1 group was 16.54 years. The average age for the E2 group was 17.32 years, and the average age for the C1 group was 16.80 years. Table 1 presents information regarding the age of students.

Table 1

Student Age as of May 31, 1975

Groups / Years	E1		E2		C1	
	No.	%	No.	%	No.	%
13	1	0.61	0	0.00	0	0.00
14	17	10.37	0	0.00	4	6.06
15	28	17.07	0	0.00	8	12.12
16	59	35.97	8	26.67	29	43.94
17	48	29.27	19	63.33	18	27.27
18	10	6.10	2	6.67	3	4.55
19	1	0.61	1	3.33	4	6.06
Total	164	100.00	30	100.00	66	100.00
Average Age	16.54		17.32		16.80	

Grade

Over 45 percent of the students available for the evaluation of the RBS Career Education Program were eleventh grade students. Twenty (20) percent were twelfth grade students, 16 percent were ninth grade students, and 16 percent were tenth grade students. The high representation of eleventh and twelfth grade students reflects the composition of the E2 and C2 groups who were continuing students and the high proportion of eleventh

grade students who applied for the 1974-1975 program. Table 2 presents information regarding the grade level of students.

Table 2

Grade Level

Group \ Grade	9 No.	9 %	10 No.	10 %	11 No.	11 %	12 No.	12 %	Total
E1	46	26.6	35	20.2	74	42.8	18	10.4	173
E2	0	0.0	2	5.1	20	51.3	17	43.6	39
E3	6	12.8	14	29.8	19	40.4	8	17.0	47
C1	10	14.9	6	9.0	40	59.7	11	16.4	67
C2	0	0.0	4	9.5	15	35.7	23	54.8	42
Total	62	16.8	61	16.6	168	45.7	77	20.9	368

Sex

Over 60 percent of the students who participated in the RBS Career Education Program or served as control counterparts were female. This disproportion reflects the sex category distribution of applicants to the program this year. Over two-thirds of the students who constituted the selection pool were female. This trend continued in the students who applied to and were accepted for the program during the course of the year. Table 3 presents information regarding the sexual composition of experimental and control groups.

Race

Over two-thirds of the students involved in the evaluation of the RBS Career Education Program were Black. Over 25 percent were White and less than 5 percent belonged to other ethnic groups. Table 4 presents the racial characteristics of the student samples.

Table 3

Sex

Group \ Sex	Female No.	Female %	Male No.	Male %	Total No.
E1	120	69.4	53	30.6	173
E2	16	41.0	23	59.0	39
E3	30	63.8	17	36.2	47
C1	45	67.2	22	32.8	67
C2	23	54.8	19	45.2	42
Total	234	63.6	134	36.4	368

Table 4

Race

Group \ Race	Black No.	Black %	White No.	White %	Other No.	Other %	Total No.
E1	109	63.0	55	31.8	9	5.2	173
E2	33	84.6	6	15.4	0	0.0	39
E3	33	70.2	13	27.7	1	2.1	47
C1	50	72.5	15	21.7	4	5.8	69
C2	24	61.5	15	38.5	0	0.0	39
Total	249	67.8	104	28.4	14	3.8	367

Reasons for Career Education Program Enrollment

With the exception of the C2 group, all groups applied for admission to the Career Education Program. Members of the E1, E2, E3, and C1 groups were asked to rank up to three reasons for enrollment in the program. The most often indicated reason was "To find out about careers." The next most often selected reason was "To receive counseling about what to do after I finish school." These two reasons accounted for over half of the primary reasons for enrollment in the Career Education Program.

Table 5 presents the primary reasons for enrollment in the program.

Table 5

Primary Reasons for CEP Enrollment

Reason \ Group	E1		E2		E3		C1		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
To receive counseling about what to do after I finish school	38	23.5	10	34.5	3	21.4	17	25.8	68	25.1
To have more individual attention in my school program	12	7.4	2	6.9	2	14.3	6	9.1	22	8.1
To find out about careers	40	24.7	11	37.9	6	42.9	15	22.7	72	26.6
To have learning activities outside of the school	8	4.9	1	3.4	0	0.0	2	3.0	10	3.7
To get into a program different from regular school	4	2.5	2	6.9	2	14.3	2	3.0	10	3.7
To get help in finding a job.	27	16.7	0	0.0	1	7.1	6	9.1	34	12.5
To make new friends	0	0.0	1	3.4	0	0.0	0	0.0	1	0.4
To get job training	33	20.4	2	6.9	0	0.0	18	27.3	53	19.6
Total	162	59.8	29	10.7	14	5.2	66	24.4	271	100.0

The primary, second, and third-ranked reasons for enrollment were then collapsed into one table. Twenty-five (25) percent of all reasons given were "To find out about careers". The next most frequently selected responses were "To get job training," and "To receive counseling about what to do after I finish school." Table 6 presents all rated reasons for enrollment in the Career Education Program.

Table 6

Reasons for CEP Enrollment

Reason \ Group	E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
To receive counseling about what to do after I finish school	75	19.0	13	17.6	4	10.3	3	18.9	123	18.3
To have more individual attention in my school program	25	6.3	6	8.1	3	7.7	8	4.9	42	6.3
To find out about careers	93	23.5	23	31.1	12	30.7	40	24.4	169	25.0
To have learning activities outside of the school	29	7.3	4	5.4	6	15.4	12	7.3	51	7.6
To get into a program different from regular school	23	5.9	11	14.9	8	20.5	11	6.7	53	7.9
To get help in finding a job	63	16.0	6	8.1	5	12.8	24	14.6	98	14.6
To make new friends	4	1.0	4	5.4	0	0.0	2	1.2	10	1.5
To get job training	83	21.0	7	9.4	1	2.6	36	22.0	127	18.8
Total	395	100.0	74	100.0	39	100.0	164	100.0	672	100.0

Parental Educational Level

Students who applied for the Career Education Program were asked to indicate the educational level of each of their parents. Nearly 40 percent of the fathers and over 46 percent of the mothers were at least high school graduates. Another 19 percent of the fathers and 20 percent of the mothers had some high school training. Over 6 percent of the fathers and nearly 5 percent of the mothers were college graduates, while 6 percent of the fathers and 8 percent of the mothers had some college training. Table 7 presents information regarding the father's educational level and Table 8 presents information regarding the mother's educational level.

Table 7

Father's Educational Level

Educational Level \ Group	E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
Elementary School	13	8.2	1	3.7	1	8.3	3	4.5	18	6.8
Junior High School	18	11.4	1	3.7	2	16.7	8	11.9	29	11.0
Some High School Training	29	18.4	7	25.9	1	8.3	13	19.4	50	18.9
High School Diploma	60	38.0	12	44.4	4	33.3	28	41.8	104	39.4
Some College Training	12	7.6	3	11.1	2	16.7	1	1.5	18	6.8
College Degree	9	5.7	2	7.4	0	0.0	5	7.5	16	6.1
Some Graduate School Training	1	0.6	0	0.0	0	0.0	1	1.5	2	0.8
Graduate School Degree	3	1.9	0	0.0	0	0.0	0	0.0	3	1.1
Other	13	8.2	1	3.7	2	16.7	8	11.9	24	9.1
Total	158	59.8	27	10.2	12	4.5	67	25.4	264	100.0

Table 8

Mother's Educational Level

Educational Level \ Group	E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
Elementary School	8	4.9	0	0.0	1	6.7	2	3.1	[illegible]	4.0
Junior High School	14	8.5	1	3.4	2	13.3	6	9.2	23	8.4
Some High School Training	32	19.5	6	20.7	6	40.0	13	20.0	57	20.9
High School Diploma	76	46.3	12	41.4	6	40.0	34	52.3	128	46.9
Some College Training	13	7.9	7	24.1	0	0.0	3	4.6	23	8.4
College Degree	8	4.9	1	3.4	0	0.0	4	6.2	13	4.8
Some Graduate School Training	1	0.6	0	0.0	0	0.0	0	0.0	1	0.4
Graduate School Degree	1	0.6	1	3.4	0	0.0	1	1.5	3	1.1
Other	11	6.7	1	3.4	0	0.0	2	3.1	14	5.1
Total	164	60.1	29	10.6	15	5.5	65	23.8	273	100.0

Parental Occupations

Students who applied for the program indicated the occupation of each of their parents. Fifty (50) percent of the fathers were skilled or semi-skilled workers. Nearly 40 percent of the mothers were homemakers. Twenty-seven (27) percent of the mothers were either clerical and sales workers or unskilled employees. Table 9 presents paternal occupations and Table 10 presents maternal occupations.

Table 9

Paternal Occupation

Occupation \ Group		E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
Higher Executives, Proprietors of Large Concerns, and Major Professionals.	(1)	7	4.5	1	4.3	1	7.7	2	3.1	11	4.3
Business Managers, Proprietors of Medium Sized Business, and Lesser Professionals.	(2)	12	7.6	2	8.7	0	0.0	4	6.2	18	7.0
Administrative Personnel, Small Independent Business Owners and Minor Professionals.	(3)	10	6.4	1	4.3	0	0.0	5	7.7	16	6.2
Clerical and Sales Workers, Technicians, and Owners of Little Business.	(4)	6	3.8	1	4.3	1	7.7	8	12.3	16	6.2
Skilled Manual Employees.	(5)	54	34.4	5	21.7	5	38.5	15	23.1	79	30.6
Machine Operators and Semi-Skilled Employees.	(6)	30	19.1	6	26.1	1	7.7	13	20.0	50	19.4
Unskilled Employees.	(7)	12	7.6	0	0.0	1	7.7	6	9.2	19	7.4
Unemployed.	(8)	5	3.2	2	8.7	0	0.0	2	3.1	9	3.5
Homemaker.	(9)	0	0.0	0	0.0	0	0.0	1	1.5	1	0.4
Unknown.	(10)	6	3.8	2	8.7	2	15.4	5	7.7	15	5.8
Other.	(11)	15	9.6	3	13.0	2	18.4	4	6.2	24	9.3
Total		157	60.9	23	8.9	13	5.0	65	25.2	258	100.0

Table 10

Maternal Occupation

Occupation \ Group	E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
Business Managers, Proprietors of Medium Sized Business, and Lesser Professionals.	15	9.5	3	11.1	1	6.3	6	9.5	25	9.5
Administrative Personnel, Small Independent Business Owners and Minor Professionals.	3	1.9	2	7.4	0	0.0	1	1.6	6	2.3
Clerical and Sales Workers, Technicians, and Owners of Little Business.	28	17.7	1	3.7	1	6.3	5	7.9	35	13.3
Skilled Manual Employees.	5	3.2	3	11.1	2	12.5	3	4.8	13	4.9
Machine Operators and Semi-Skilled Employees.	7	4.4	2	7.4	0	0.0	3	4.8	12	4.5
Unskilled Employees.	22	13.9	2	7.4	3	18.8	10	15.9	37	14.0
Unemployed.	6	3.8	2	7.4	0	0.0	5	7.9	13	4.9
Homemaker.	62	39.2	9	33.3	7	43.8	24	38.1	102	38.6
Unknown.	2	1.3	0	0.0	2	12.5	1	1.6	5	1.9
Other.	8	5.1	3	11.1	0	0.0	5	7.9	16	6.1
Total	158	59.8	27	10.2	16	16.1	63	23.9	264	100.0

Plans to Graduate

Applicants to the Career Education Program were polled for their plans to graduate. Over two-thirds of the students indicated that they planned to graduate from high school. Slightly over 20 percent indicated they weren't sure they would get a secondary school diploma and less than 2 percent indicated that they did not plan to earn a secondary school diploma. Table 11 presents information regarding plans to graduate.

Table 11

Plans to Earn Secondary School Diploma

Group	Yes No.	Yes %	No No.	No %	Not Sure No.	Not Sure %	Total No.	Total %
E1	132	78.1	3	1.8	34	20.1	169	59.7
E2	21	67.7	0	0.0	10	32.3	31	11.0
E3	11	68.8	2	12.5	3	18.8	16	5.7
C1	46	68.6	1	1.5	20	29.9	67	23.7
Total	210	74.2	6	2.1	67	23.7	283	100.0

Post Secondary Plans

Applicants to the Career Education Program indicated what they expected to do after completing their secondary school program. Students stated as many choices as applied. Over 25 percent of the responses indicated that students planned to attend four year colleges or universities. Nineteen (19) percent of the responses indicated students planned on full-time employment and nearly 13 percent of the responses indicated that students planned on part-time employment. Over 13 percent of the responses indicated that students planned further formal vocational, technical, trade or business training. Over 6 percent of the responses indicated that students planned on apprenticeships or other on-the-job training. Table 12 presents information regarding students post secondary plans.

Table 12

Post Secondary Plans

Plans \ Group	E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
Full-time Employment	51	19.8	0	0.0	5	20.0	25	26.9	81	19.0
Apprenticeship or On-the-Job Training Program	13	5.1	6	11.5	3	12.0	5	5.4	27	6.2
Regular Military Service or a Service Academy	11	4.3	5	9.6	1	4.0	7	7.5	24	5.6
Full-time Homemaker	7	2.7	0	0.0	0	0.0	1	1.1	8	1.9
Vocational, Technical, Trade or Business School	35	13.6	6	11.5	3	12.0	12	12.9	56	13.1
Study of Academic Courses at Junior or Community College	14	5.4	5	9.6	3	12.0	4	4.3	26	6.1
Study of Technical or Vocational Subjects at Junior or Community College	4	1.6	3	5.8	2	8.0	2	2.1	11	2.6
Four-year College or University	69	26.9	17	32.7	4	16.0	21	22.6	111	26.0
Part-time Employment	35	13.6	8	15.4	3	12.0	8	8.6	54	12.7
Other	18	7.0	2	3.9	1	4.0	8	8.6	29	6.8
Total	257	60.2	52	12.2	25	5.8	93	21.8	427	100.0

Occupational Plans

Applicants to the Career Education Program were asked to state their immediate and long-range occupational plans. Long-range occupational plans were in the context of five years after completion of education.

Immediate Occupational Plans. Over 20 percent of the students indicated that they planned to be clerical and sales workers, technicians, or owners of small businesses immediately after completion of their education. Over 18 percent indicated that they planned to be business managers, lesser professionals, or proprietors of medium-sized businesses. Over 12 percent planned to be higher executives, major professionals, or proprietors of large concerns. Almost 11 percent planned to be skilled manual employees. Table 13 presents the immediate occupational plans of students.

Table 13

Immediate Occupational Plans

Plans \ Group	E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
Higher Executives, Proprietors of Large Concerns, and Major Professionals.	20	12.6	4	13.8	2	12.5	8	12.7	34	12.7
Business Managers, Proprietors of Medium Sized Business, and Lesser Professionals.	30	18.9	5	17.2	2	12.5	12	19.0	49	18.4
Administrative Personnel, Small Independent Business Owners, and Minor Professionals.	12	7.5	5	17.2	2	12.5	5	7.9	24	9.0
Clerical and Sales Workers, Technicians, and Owners of Little Business.	36	22.6	1	3.4	3	18.8	15	23.8	55	20.6
Skilled Manual Employees.	18	11.3	4	13.8	3	18.8	4	6.3	29	10.9
Machine Operators and Semi-Skilled Employees.	6	3.8	1	3.4	2	12.5	2	3.2	11	4.1
Unskilled Employees.	1	0.6	1	3.4	1	6.3	1	1.6	4	1.5
Homemaker.	2	1.3	0	0.0	0	0.0	0	0.0	2	0.7
Unknown.	10	6.3	2	6.9	0	0.0	8	12.7	20	7.5
Other.	24	15.1	6	20.7	1	6.3	8	12.7	39	14.6
Total	159	59.6	29	10.9	16	6.0	63	23.6	267	100.0

Long-Range Occupational Plans. Over 25 percent of the students indicated that they planned to be business managers, lesser professionals, or proprietors of medium-sized businesses five years after completion of their education. Over 20 percent indicated they planned to be higher executives, major professionals or proprietors of large concerns. Nearly 15 percent planned on being clerical sales workers, technicians, or owners of small businesses. Table 14 presents information regarding the long-range occupational plans of students.

Table 14

Long-Range Occupational Plans

Plans \ Group	E1 No.	E1 %	E2 No.	E2 %	E3 No.	E3 %	C1 No.	C1 %	Total No.	Total %
Higher Executives, Proprietors of Large Concerns, and Major Professionals.	29	18.2	7	25.0	5	33.3	14	21.5	55	20.6
Business Managers, Proprietors of Medium Sized Business, and Lesser Professionals.	42	26.4	4	14.3	4	26.7	17	26.2	67	25.1
Administrative Personnel, Small Independent Business Owners, and Minor Professionals.	7	4.4	1	3.6	2	13.3	5	7.7	15	5.6
Clerical and Sales Workers, Technicians, and Owners of Little Businesses.	23	14.5	3	10.7	1	6.7	12	18.5	39	14.6
Skilled Manual Employees.	17	10.7	6	21.4	1	6.7	1	1.5	25	9.4
Machine Operators and Semi-Skilled Employees.	5	3.1	0	0.0	0	0.0	1	1.5	6	2.2
Homemaker.	4	2.5	1	3.6	1	6.7	1	1.5	7	2.6
Unknown.	17	10.7	1	3.6	1	6.7	9	13.8	28	10.5
Other.	15	9.4	5	17.9	0	0.0	5	7.7	25	9.4
Total	159	59.6	28	10.5	15	5.6	65	24.3	267	100.0

Achievement Level

Students in the E1, E2, C1, and C2 groups took the Reading and Arithmetic subtests of the Comprehensive Tests of Basic Skills (CTBS) in Spring, 1974. Achievement levels for each of these groups were derived from performance on the CTBS. The half to a full grade equivalent higher performance of the E2 and C2 groups reflects the higher grade level of these groups. The C1 group is consistently higher than the E1 group in presenting achievement level; the differences range from a quarter to a half grade equivalent and are more marked on reading skill subtests. Table 15 presents information regarding presenting achievement level.

Table 15

Achievement Level

Grade Equivalents

Spring, 1974

Group / CTBS-Subtest	E1 n=167	E2 n=24	C1 n=66	C2 n=23
Reading				
Vocabulary	8.08	8.94	8.65	9.46
Comprehension	7.55	8.13	7.85	8.04
Total	7.80	8.56	8.35	8.82
Arithmetic				
Computation	7.38	7.95	7.48	8.40
Concepts	7.52	8.80	7.95	9.37
Application	6.71	8.13	6.93	7.31
Total	7.21	8.08	7.49	8.46

As they were represented by this series of demographic analyses, the student groups involved in the 1974-1975 evaluation appeared to be similar in most regards. A total of 259 experimental students and 109 comparison subjects were included in the analyses. Of these, 173 and 67 formed the true experimental and control groups respectively

at the end of the program year. These figures exclude dropouts during the course of the year.

The bulk of the students were eleventh graders with smaller representations from the ninth, tenth, and twelfth grades. Males and Whites constituted only minority segments to the groups.

Most students applied for entrance to the Career Education Program in order to find out about careers, to receive job training, to receive counseling about what to do after high school, or to get help in finding a job.

Most parents were reported to have some high school training or a high school diploma. Most fathers were skilled or semi-skilled employees, while the largest group of mothers were in the homemaker category.

A large majority of the students planned to graduate from high school. After that, most anticipated attending a four-year college, full-time employment, or vocational-technical-business school. Specific occupational plans were varied, but many suggested the use of further training and some entrepreneurial interest. In general, the plans indicated by students exceeded the ambitions reportedly realized by their parents.

In terms of academic achievement as measured by standardized tests of basic skills, the average grade equivalents ranged from the sixth through the ninth grade level. These averages are obviously well below the desirable levels as they are expressed by national norms.

Within this profile of student characteristics the marked similarity among groups has been noted. Several group differences are also worthy of

mention. The true experimental students were, on the average, lower in grade level and age than their control counterparts. The E1 group was underrepresented at the twelfth grade level and overrepresented at the eleventh grade level. Simultaneously, the C1 group was composed mainly of eleventh and twelfth grade students and underrepresented in the ninth and tenth grades. The true experimentals also appeared to evidence a lower academic achievement level than did the controls.

III. Student Attrition

Student attrition from educational programs is a phenomenon which presents difficulties for administrators, evaluators, and the students involved. Administrators must arrange for reinstating program dropouts in another curriculum, as well as filling their places in the original program. Evaluators must adjust their designs and procedures to accommodate changing student groups. The students must face entering another curriculum at a disadvantage due to lost time or entering a non-school environment at an untypical time. The consequences of attrition are thus significant.

In the preceeding section student samples were described as they existed at the end of the program year. These were the students who were involved in the evaluation throughout 1974-1975. Another contingent of students was not represented in the proceeding section because they dropped out of the student groups during the course of the year. It is this contingent which is the subject of the present section on student attrition.

The attrition phenomenon is here documented with regard to its extensiveness and investigated to uncover dropout patterns. The characteristics of dropouts are compared with characteristics of students who were retained in order to determine the effect of attrition on the student groups. It was intended that these analyses would identify elements in the attrition process which could be affected to reduce attrition in the future.

Concerning the extensiveness of attrition, Table 16 presents the figures for group size at the beginning and end of the 1974-1975 RBS Career Education Program year. The E1 and C1 groups are the first year true experimental and control groups. The E2 and C2 groups are the second year

Table 16

Initial and Final Group Size

Size / Group	Initial	Final	No. Dropped	% Dropped
E1	254	173	81	31.89
C1	86	69	17	19.77
E2	42	39	3	7.14
C2	58	42	16	27.59
Total E	296	212	84	28.38
Total C	144	111	33	22.92

quasi-experimental and comparison groups. The E3 group has not been included in any analyses in this section because it had no initial membership, having been created to replace E1 and E2 dropouts.

Table 16 demonstrates that the rates of attrition for all groups but E2 were substantial. The E2 rate was expected to be low since this group was in its second year of the program and had already experienced first year attrition. It should be noted that experimental group attrition was much lower than in previous years, when it approximated 50 percent. Despite this favorable comparison with past experience, the number of dropouts was still higher than would be desirable. It must be concluded that the extensiveness of attrition has sufficient impact on the program to warrant seeking methods to reduce it.

An interesting unanticipated finding emerged from the data on the extent of attrition. A difference in the meaning of attrition for experimental and control students established the need for further analysis

leading to this finding. For the control groups (C1 and C2) the attrition noted in Table 16 meant dropping out of school. For the experimental groups (E1 and E2) similar figures denoted dropping out of the program, but not necessarily out of school. This difference arose from initially defining attrition in terms of a student's availability for program evaluation. C1 and C2 students became unavailable only by dropping out of school entirely, while E1 and E2 students no longer represented their groups when they dropped out of the program. Separating the E1 and E2 school dropouts from the program dropouts allowed an analysis of comparative school dropout rates. Table 17 presents these data.

Table 17

School Dropouts

Group \ Status	Retained Students fo	Retained Students fe	Retained Students χ^2	Dropouts fo	Dropouts fe	Dropouts χ^2	Total fo	Total χ^2
E1	239	230.1	.3442	15	23.9	3.3142	254	3.6584*
C1	69	77.9	1.0168	17	8.1	8.900	86	9.9168*
Total	308		1.3610	32		12.2142*	340	13.5752

Group \ Status	Retained Students fo	Retained Students fe	Retained Students χ^2	Dropouts fo	Dropouts fe	Dropouts χ^2	Total fo	Total χ^2
E2	40	34.4	.9116	2 (2.5)	7.6	3.4223	42	4.3339*
C2	42	47.6	.6588	16	10.4	3.0153	58	3.6741*
Total	82		1.5704	18		6.4376*	100	8.0080

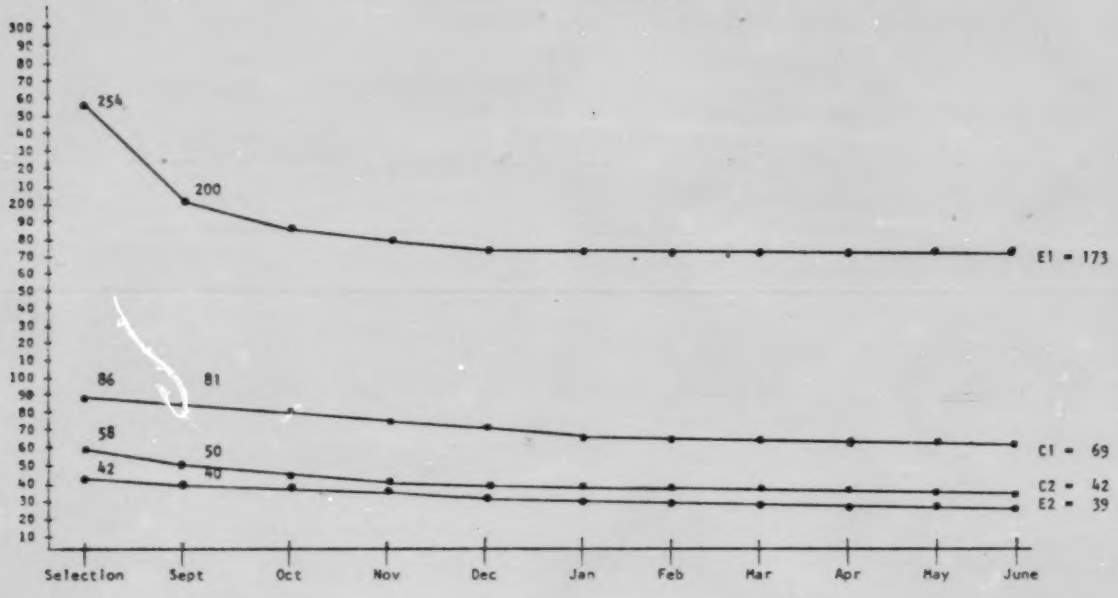
* $p < .10$ at df = 1 when $\chi^2 \geq 2.706$

The differences in the school dropout rates of the experimental and control groups is striking. Only 5.91 percent and 4.76 percent of the E1 and E2 groups respectively dropped out of scholl during 1974-1975. This is compared

with dropout rates of 19.77 percent and 27.59 percent for the C1 and C2 groups respectively. Chi-square values indicated that for both experimental-control comparisons the experimental groups had significantly fewer school dropouts than expected and the control groups had significantly more.

The next analysis investigated attrition on a time line over the course of the year. For this and subsequent analyses "attrition" again resumed its initial definition which included both school droputs and program dropouts for the experimental groups. Figure 1 presents attrition data for all groups month by month during 1974-1975. Group size is represented for the conclusion of each month indicated.

Figure 1
Group Attrition



From the curves in Figure 1 it can be seen that a large proportion of the attrition, especially for the E1 group, occurred early in the year. Of the total numbers of students who were eliminated from groups during the year the following percentages left prior to October: E1 - 66.67, C1 - 29.41, E2 - 66.67, C2 - 50.00. Early attrition was thus substantial. For the experimental groups it was greater than for controls. This might be expected since the experimental figures reflected predominantly program leavers, while the control data designated school dropouts. The extent of early attrition among the E1 group has potential significance in terms of program procedures and suggests that in some respect actual experience in the program differed from expectations generated during recruitment.

The remaining analyses focused on student characteristics. Only the true experimental and control groups (E1 and C1) were included in these analyses. It should be noted again that attrition for the E1 group is primarily departure from the program while C1 attrition is dropping out of school. The variables employed were sex, race, grade level, father's occupation, mother's occupation, immediate occupational plans, and academic achievement. For each variable the retained subgroups were compared with the eliminated subgroups using chi-square analyses for categorical variables and t-tests for continuous variables. These analyses were intended to isolate characteristics of dropouts (eliminated subgroups) which differed from the characteristics of the subgroups who were retained. The results for each variable are presented in the series of tables which follows.

Table 18

Sex

Group / Category	EI Retained fo	EI Retained fe	EI Retained χ^2	EI Dropped fo	EI Dropped fe	EI Dropped χ^2	Total fo	Total χ^2
Male	55	56.1	.0215	26	24.9	.0485	81	.0700
Female	116	114.9	.0105	50	51.1	.0236	166	.0341
Total	171		.0320	76		.0721	247	.1041

Group / Category	CI Retained fo	CI Retained fe	CI Retained χ^2	CI Dropped fo	CI Dropped fe	CI Dropped χ^2	Total fo	Total χ^2
Male	22	20.9	.0578	4 (4.5)	5.1	.0705	26	.1283
Female	47	48.1	.0251	13	11.9	.1016	60	.1267
Total	69		.0829	17		.1721	86	.2550

Table 19

Race

Group / Category	EI Retained fo	EI Retained fe	EI Retained χ^2	EI Dropped fo	EI Dropped fe	EI Dropped χ^2	Total fo	Total χ^2
Black	106	103.7	.0510	44	46.3	.1142	150	.1652
White	53	54.6	.0468	26	24.4	.1049	79	.1517
Other	11	11.7	.0418	6 (5.5)	5.3	.0075	17	.0493
Total	170		.1396	76		.2266	246	.3662

Group / Category	CI Retained fo	CI Retained fe	CI Retained χ^2	CI Dropped fo	CI Dropped fe	CI Dropped χ^2	Total fo	Total χ^2
Black	50	46.5	.2634	8 (8.5)	11.5	.7826	50	1.0460
White	50	16.8	.1928	6 (5.5)	4.1	.4780	21	.6708
Other	4 (4.5)	5.6	.2160	3 (2.5)	1.4	.5785	7	.7945
Total	69		.6722	17		1.8391	86	2.5113

Table 20

Grade Level

Group / Category	E1 Retained fo	fe	χ^2	E1 Dropped fo	fe	χ^2	Total fo	χ^2
9	55	53.3	.0542	22	23.7	.1219	77	.1761
10	53	53.3	.0016	24	23.7	.0037	77	.0053
11	53	51.2	.0632	21	22.8	.1421	74	.2053
12	10	13.1	.7335	9 (8.5)	5.8	1.2568	19	1.9903
Total	171		.8525	76		1.5245	247	2.3770

Group / Category	C1 Retained fo	fe	χ^2	C1 Dropped To	fe	χ^2	Total fo	χ^2
9	10	16.0	2.2500	10	4.0	9.0000	20	11.2500*
10	23	21.7	.0778	4 (4.5)	5.3	.1207	27	.1985
11	29	24.1	.9962	1 (1.5)	5.9	3.2813	30	4.2775*
12	7 (7.5)	7.2	.0125	2 (1.5)	1 8	.0500	9	.0625
Total	69		3.3365	17		12.4520*	86	15.7885

* $p < .10$ at df = 1 when $\chi^2 \geq 2.706$ or df = 3 and $\chi^2 \geq 6.251$

Table 21

Father's Occupation

Group / Category*	ET Retained fo	ET Retained fe	ET Retained x^2	ET Dropped fo	ET Dropped fe	ET Dropped x^2	Total fo	Total x^2
1	7 (6.5)	5.6	.1446	1 (1.5)	2.4	.3375	8	.4821
2	12	14.6	.4630	9 (8.5)	6.4	.6890	21	1.1520
3	10	9.0	.1111	3 (3.5)	4.0	.0625	13	.1736
4	6 (6.5)	9.0	.6944	7 (6.5)	4.0	1.5625	13	2.2569
5	54	50.7	.2147	19	22.3	.4883	73	.7030
6	30	31.3	.0539	15	13.7	.1233	45	.1772
7	12	11.8	.0016	5 (5.5)	5.2	.0173	17	.0189
8	5 (4.5)	4.2	.0214	1 (1.5)	1.8	.0500	6	.0714
9	0	0.0	.0000	0	0.0	.0000	0	.0000
10	6 (5.5)	5.6	.0017	2 (2.5)	2.4	.0041	8	.0058
11	15	15.3	.0058	7 (6.5)	6.7	.0059	22	.0117
Total	157		1.7122	69		3.3404	226	5.0526

Group / Category*	CT Retained fo	CT Retained fe	CT Retained x^2	CT Dropped fo	CT Dropped fe	CT Dropped x^2	Total fo	Total x^2
1	2 (1.5)	1.6	.0062	0 (0.5)	.4	.0250	2	.0312
2	4	4.0	.0000	1	1.0	.0000	5	.0000
3	5 (5.5)	5.6	.0017	2 (1.5)	1.4	.0071	7	.0088
4	8 (8.5)	8.8	.0102	3 (2.5)	2.2	.0409	11	.0511
5	15	14.4	.0250	3 (3.5)	3.6	.0027	18	.0277
6	13	11.2	.2892	1 (1.5)	2.8	.6035	14	.8927
7	6 (5.5)	5.6	.0017	1 (1.5)	1.4	.0071	7	.0088
8	2 (1.5)	1.6	.0062	0 (0.5)	.4	.0250	2	.0312
9	1 (0.5)	.8	.1125	0 (0.5)	.2	.4500	1	.5625
10	5 (5.5)	6.4	.1265	3 (2.5)	1.6	.5062	8	.6327
11	4 (4.5)	4.8	.0187	2 (1.5)	1.2	.0750	6	.0937
Total	65		.5979	16		1.7425	81	2.3404

* For category content see Table 9.

Table 22

Mother's Occupation

Group / Category*	EI Retained fo	fe	x^2	EI Dropped fo	fe	x^2	Total fo	x^2
1	0 (0.5)	.7	.0571	1 (0.5)	.3	.1333	1	.1904
2	15	14.5	.0172	6 (6.5)	6.5	.0000	21	.0172
3	3 (2.5)	2.8	.0321	1 (1.5)	1.2	.0750	4	.1071
4	28	29.0	.0344	14	13.0	.0769	42	.1113
5	5 (4.5)	4.1	.0390	1 (1.5)	1.9	.0842	6	.1232
6	7 (7.5)	8.3	.0771	5 (4.5)	3.7	.1729	12	.2500
7	22	18.6	.6215	5 (5.5)	8.4	1.0011	27	1.6226
8	6 (5.5)	5.5	.0000	2 (2.5)	2.5	.0000	8	.4185
9	62	64.9	.1295	32	29.1	.2890	94	.4185
10	2 (2.5)	3.4	.2382	3 (2.5)	1.6	.5062	5	.7444
11	8 (7.5)	6.2	.2725	1 (1.5)	2.8	.6035	9	.8760
Total	158		1.5186	71		2.9421	229	4.4607

Group / Category*	CI Retained fo	fe	x^2	CI Dropped fo	fe	x^2	Total fo	x^2
1	0 (0.5)	.8	.1125	1 (0.5)	1.4	.0071	7	.0088
2	6 (5.5)	4.8	.1020	0 (0.5)	1.2	.4083	6	.1406
3	1 (0.5)	.8	.1125	0 (0.5)	.2	.4500	1	.5625
4	5 (5.5)	5.6	.0017	2 (1.5)	1.4	.0071	7	.0088
5	3 (3.5)	3.2	.0281	1 (0.5)	.8	.1125	4	.1406
6	3 (2.5)	2.4	.0041	0 (0.5)	.6	.0166	3	.5103
7	10	9.6	.0166	2 (2.5)	2.4	.0041	12	.0207
8	5 (4.5)	4.8	.0187	1 (1.5)	1.2	.0750	6	.0937
9	24	25.5	.0882	8 (7.5)	6.5	.1538	32	.2420
10	1 (0.5)	.8	.1125	0 (0.5)	.2	.4500	1	.5625
11	5 (4.5)	4.8	.0187	1 (1.5)	1.2	.0750	6	.0937
Total	63		.6156	16		2.2024	79	2.8180

* For category content see Table 9.

Table 23

Immediate Occupational Plans

Group / Category[a]	EI Retained fo	fe	χ^2	EI Dropped fo	fe	χ^2	Total fo	χ^2
1	20	22.1	.1995	12	9.9	.4454	32	.6449
2	30	27.0	.3333	9 (9.5)	12.0	.5208	39	.8541
3	12	11.8	.0033	5 (5.5)	5.2	.0173	17	.0206
4	36	33.2	.2361	12	14.8	.5297	48	.7658
5	18	18.7	.0262	9 (8.5)	8.3	.0048	27	.0310
6	6 (6.5)	8.3	.3903	6 (5.5)	3.7	.8756	12	.2659
7	1 (0.5)	.7	.0571	0 (0.5)	.3	.1333	1	.0206
8	0	0.0	.0000	0	0.0	.0000	0	.0000
9	2 (1.5)	1.4	.0071	0 (0.5)	.6	.0166	2	.0237
10	10	13.1	.7335	9 (8.5)	5.9	1.1457	19	1.8792
11	24	22.8	.0631	99 (9.5)	10.2	.0480	33	.1111
Total	159		2.0495	71		3.7372	230	5.7867

Group / Category[a]	CI Retained fo	fe	χ^2	CI Dropped fo	fe	χ^2	Total fo	χ^2
1	8 (8.5)	9.6	.1260	4 (3.5)	2.4	.5041	12	.6301
2	12	12.0	.0000	3	3.0	.0000	15	.0000
3	5 (5.5)	5.6	.0017	2 (1.5)	1.4	.0071	7	.0088
4	15	12.8	.3781	1 (1.5)	3.2	.9031	16	1.2812
5	4	4.0	.0000	1	1.0	.0000	5	.0000
6	2 (1.5)	1.6	.0062	0 (0.5)	.4	.0250	2	.0312
7	1 (1.5)	1.6	.0062	1 (0.5)	.4	.0250	2	.0312
8	0	0.0	.0000	0	.0	.0000	0	.0000
9	0	0.0	.0000	0	.0	.0000	0	.0000
10	8	8.0	.0000	2	2.0	.0000	10	.0000
11	8	8.0	.0000	2	2.0	.0000	10	.0000
Total	63		.5182	16		1.4643	79	1.9825

[a] For category content see Table 9.

Table 24

CTBS Academic Achievement
In Scale Scores

Reading Comprehension

EI Retained	EI Dropped	t-Value
$\bar{X}$ = 523.50617 n = 162 σ^2 = 6276.95959	$\bar{X}$ = 524.02667 n = 75 σ^2 = 7725.40469	t = .0452

Arithmetic Concepts

EI Retained	EI Dropped	t-Value
$\bar{X}$ = 505.74699 n = 166 σ^2 = 5328.04469	$\bar{X}$ = 505.21053 n = 76 σ^2 = 6557.95509	t = .0510

Arithmetic Applications

EI Retained	EI Dropped	t-Value
$\bar{X}$ = 489.19394 n = 165 σ^2 = 5289.96216	$\bar{X}$ = 496.09211 n = 76 σ^2 = 6063.12474	t = .6663

Reading Comprehension

CI Retained	CI Dropped	t-Value
$\bar{X}$ = 533.89394 n = 66 σ^2 = 5274.43473	$\bar{X}$ = 532.45455 n = 11 σ^2 = 3689.27273	t = .0614

Arithmetic Concepts

CI Retained	CI Dropped	t-Value
$\bar{X}$ = 519.89231 n = 65 σ^2 = 6864.72260	$\bar{X}$ = 516.63636 n = 11 σ^2 = 5831.25454	t = .1203

Arithmetic Applications

CI Retained	CI Dropped	t-Value
$\bar{X}$ = 499.34375 n = 64 σ^2 = 4588.86409	$\bar{X}$ = 520.36364 n = 11 σ^2 = 4370.65454	t = .9412

It is apparent that this rather lengthy set of analyses yielded little in the way of differences between dropouts and non-dropouts. Of all the variables tested only one, grade level, demonstrated differences at a statistically significant level. This was for the C1 group, where the number of ninth grade dropouts was greater than expected and the number of eleventh grade dropouts was less than expected. No characteristic differences were found among the experimental students.

Overall, the investigation of student attrition resulted in information which increased understanding of the process and suggested future actions.

Experimental group attrition was found to be much lower during 1974-1975 than in previous years. This was probably due to the required pre-enrollment sessions which were introduced into the application process. Such procedures may be an effective way to weed out the less determined applicants and minimize attrition during the program.

When school dropouts were extracted from the larger attrition subgroups including both program and school leavers for the experimental samples, an unanticipated finding emerged. It was found that the experimental group school dropout rates were significantly lower than the control group rates. It thus seems that some exposure to the program reduces the liklihood of dropping out of school. The fact that this effect was evidenced by both true experimental and quasi-experimental groups adds to the strength of the conclusion. Further research of this observed trend could provide insight into the generic problem of school attrition.

It was observed that attrition early in the year was substantial, particularly among the experimental groups. This suggests that actual experience in the program differed from the expectations generated during recruitment. If discrepancies between expectations and actual content or conduct have occurred, then the need is emphasized to fully explain the program during recruitment and to insure that the program is implemented according to plan.

Finally, analyses comparing retained and eliminated students on a lengthy series of characteristics failed to isolate any consistent factors related to attrition. These results suggest the need for further study of the students involved in attrition using a broader selection of variables.

IV. INSTRUMENTS

The RBS Career Education Program identified three general areas in which student outcomes were of interest to the program and the funding agency. Those areas were (1) Career Skills, (2) Life Skills, and (3) Basic Academic Skills. Additionally, the program had need of basic demographic information for students who participated in the Career Education Program or served as control group counterparts. Instruments selected or constructed to address each area are discussed below.

Student Demographic Data

A Student Demographic Data Questionnaire (SDQ) was constructed to gather information concerning the demographic characteristics of students. The SDQ collects information such as student name, address, telephone number, birth date, sex, grade level, and ethnic group membership. The SDQ solicits grade average, attendance rate, plans after completing secondary school program, and reason for applying to the Career Education Program. The SDQ also requests parental occupations and levels of education as well as the short-term and long-term occupational plans of students.

Career Skills

The area of career skills is one of central interest to the field of career education. Instruments available to assess this area have been criticized as being of questionable psychometric quality or too lengthy to administer in combination with other instruments. Other criticisms focus on the underlying constructs of the instruments which are viewed as being too narrowly drawn or in opposition to the goals and intents of experience-

based career education. The instruments listed below were selected or constructed in the context of these criticisms.

Career Maturity Inventory (CMI). Two subtests of the CMI Competence Test were selected to assess career skills development; they were the Occupational Information and Planning subtests. They were selected since they attempt to measure knowledge of career and occupational facts and sequences and are relatively free of biases which are contradictory to goals of the program. The other subtests and the Attitude Scale of the CMI were reviewed by RBS project staff and evaluators from other laboratories and were judged to reflect goals in opposition to those of the program or to possess low reliability and validity.

Career Attitude Scale (CAS). The CAS is a 25 item Likert-like scale developed in response to the criticism of the CMI Attitude Scale. There are two subscales to the CAS: The Attitude Toward Career Knowledge scale (15 items) and the Attitude Toward Career Planning scale (10 items). Only the former subscale proved to be pschometrically reliable, thus the latter will not be used in hypothesis testing.

Self Directed Search (SDS). The SDS is a self-assessment of skills, abilities, and interests. Students indicate likes and dislikes, activities in which they are competent, and activities in which they are interested. They also assess relative ability in several areas and indicate the sequence of occupations they have considered. Individual sections of the SDS are usually labelled to reflect categories on which the instrument is based and self-scored. The category labels were removed from the instrument and scoring was performed by RBS evaluation staff.

The occupations considered and the overall scores are collapsed into six categories which are then ranked: Realistic, Intellectual or Investigative, Social, Enterprising, Artistic, and Conventional. The instrument is based on the premise that individuals seek environments and vocations which are consonant with self-assessment and avoid those which are dissonant.

The measure that is used to assess career skills development is the agreement between the primary occupation considered and the overall ranking of categories.

Life Skills

Three instruments which assess student attitudes were selected to assess life skills development. The instruments are the Assessment of Student Attitudes Toward Learning Environments, the Berger Acceptance of Self Scale, and the self-estimate scores from the SDS. Each is described below.

Assessment of Student Attitudes Toward Learning Environments (ASA). The ASA is a 26 item Likert-scale instrument developed by RBS for use in traditional and innovative secondary school settings. The instrument yields four subscores and an overall score. The scales are Attitude Toward Education in General, Attitude Toward School Curriculum, Attitude Toward School Resources, Attitude Toward School Counseling, and Overall Attitude Toward Learning Environments.

Berger Acceptance of Self Scale (BASS). The BASS is a 36 item Likert-formatted instrument developed to assess student attitude toward self. This yields a single self-concept score.

Self-Directed Search (SDS). The SDS yields total scores of perceived strengths in each of six career-related areas. These scores are used as a second index of attitude toward self.

Basic Academic Skills

The Comprehensive Tests of Basic Skills (CTBS) were selected to assess basic academic skill proficiency. The CTBS is a standardized instrument with four levels having two alternate forms each. Level 4 of the CTBS is appropriate for use with secondary students and was utilized in this study. Specific subtests of the CTBS used were Reading Comprehension, Arithmetic Concepts, and Arithmetic Applications.

V. Evaluation Design

The evaluation design for 1974-1975 was based on the capability of testing both first and second year program effects. The E1 (experimental) and C1 (control) groups had been composed from the same pool using random assignment, and they presented the opportunity for a true experimental design. The E1 group was in the Career Education Program for its first year, while the C1 group continued in the regular high school curriculum due to their not being selected for the program. The E2 (experimental) and C2 (comparison) student groups had been established for the program in 1973-1974. The E2 students were in the Career Education Program for their second year. The C2 group had been selected randomly from the high school student body and also observed over the course of two years. The E2 and C2 groups thus allowed a quasi-experimental design.

In all, there were four[1] student groups maintained for the 1974-1975 evaluation. These groups are described more completely in Section II above. All students except C2 had volunteered for the Career Education Program. All were drawn from the same large, urban high school. The design included true experimental and control groups, E1 and C1, for analyzing first year effects and quasi-experimental and comparison groups, E2 and C2, for analyzing second year effects.

The inherent differences between the true experimental and quasi-experimental design components placed some limitations on the strength of conclusions drawn in the latter. However, the research and evaluation potential of the dual design was considerable in terms of comprehensiveness.

[1] The fifth group (E3) noted above was used only for descriptive purposes and was not part of the evaluation design.

The following instruments were selected for use in the evaluation:

1. Student Demographic Data Questionnaire (SDQ)
2. Career Maturity Inventory (CMI)
3. Career Attitude Scale (CAS)
4. Self-Directed Search (SDS)
5. Assessment of Student Attitudes Scale (ASA)
6. Berger Acceptance of Self Scale (BASS)
7. Comprehensive Tests of Basic Skills (CTBS)

These instruments are described in Section IV above. The SDQ was used to gather demographic, background, and personal planning information. The other instruments were included in the pretest-posttest package to obtain data for the evaluation of student effects.

The pretest administration was completed in two sets of sessions. The first was conducted as part of the selection process in May, 1974 and included the SDQ and CTBS. The second was scheduled after the summer recess in October, 1974 and contained all other instruments. All instruments were administered by the project evaluation staff under prescribed conditions in testing rooms provided by the high school.

The posttest administration was conducted in one set of sessions during May and early June, 1975. All instruments, except the SDQ, were completed in these sessions. The instruments were administered by external evaluation staff (ETS) and scheduled and supervised by the project evaluators. Testing was conducted under standardized conditions in facilities provided by the high school.

Test scoring was done manually for the pretest and by machine, using an RBS-developed scoring package, for the posttest. A random sample of both pretest and posttest scores was verified for each instrument. All resultant data were entered into the project's computer data system.

A set of hypotheses was established to investigate the effects of the RBS Career Education Program. These hypotheses fall into three major areas of effect: career skills, life skills, and basic skills. For each of these areas hypotheses have been stipulated regarding growth within the experimental groups and comparative growth between experimental and control groups. These hypotheses were as follows:

Career Skills.

1. Experimental students will acquire increased mastery in career knowledge.
2. Experimental students will acquire significantly greater mastery in career knowledge than control students in a traditional high school.
3. Experimental students will acquire increased career maturity.
4. Experimental students will acquire significantly greater career maturity than control students in a traditional high school.

Life Skills.

5. Experimental students will acquire increased positive attitudes toward learning environments.
6. Experimental students will develop significantly more positive attitudes toward learning environments than control students in a traditional high school.
7. Experimental students will acquire increased positive attitudes toward self.
8. Experimental students will develop significantly more positive attitudes toward self than control students in a traditional high school.

Basic Skills.

9. Experimental students will acquire increased mastery in basic academic skills.

10. Experimental students will acquire significantly greater mastery in basic academic skills than control students in a traditional high school.

Within each major area of interded program effect there were two categories of hypotheses. One treated gains within the experimental groups; the other was concerned with the performance of the experimental groups relative to the control groups. Each hypothesis was to be tested using both first year and second year student group data. Thus, within group hypotheses utilized the E1 and E2 groups; between group hypotheses were directed toward E1 vs. C1 and E2 vs. C2 results.

Analyses were designed to test each of the stated hypotheses. The relationships between instruments and hypotheses is specified below.

Career Skills.

Hypothesis 1 (career knowledge within E1 and E2) - CMI Occupation Information and Planning subtests.

Hypothesis 2 (career knowledge between E1 and C1, E2 and C2) - Same as #1.

Hypothesis 3 (career maturity within E1 and E2) - CAS, SDS primary occupation and summary rating.

Hypothesis 4 (career maturity between E1 and C1, E2 and C2) - Same as #3.

Life Skills.

Hypothesis 5 (learning attitudes within E1 and E2) - ASA.

Hypothesis 6 (learning attitudes between E1 and C1, E2 and C2) - Same as #5.

Hypothesis 7 (self-concept within E1 and E2) - BASS and SDS total scores.

Hypothesis 8 (self-concept between E1 and C1, E2 and C2) - Same as #7.

Basic Skills.

Hypothesis 9 (basic skills within E1 and E2) - CTBS Reading Comprehension, Arithmetic Concepts, and Arithmetic Applications.

Hypothesis 10 (basic skills between E1 and C1) - Same as #9.

For hypothesized effects within the experimental groups (hypotheses 1, 3, 5, 7, and 9) the scheduled analyses were t-tests for paired data using matched pretest and posttest scores. The SDS portion of hypothesis 3 represented an exception to the t-test procedure by utilizing a chi-square analysis of posttest vs. pretest congruence of primary occupation considered and summary rating. These analyses tested for the statistical significance of growth within the experimental groups.

For hypothesized differential effects between the experimental and control groups (hypotheses 2, 4, 6, 8, and 10) the statistical treatment began with t-tests or analyses of variance on the pretest scores with group membership as the independent variable. In cases where no significant pretest differences were found, the posttest scores were then also subjected to t-tests or analyses of variance. In cases where significant pretest differences were found, the posttest scores became the criterion in analyses of covariance with the pretest measures as the covariate. The SDS portion of hypothesis 4 represented an exception to the variance-covariance procedures by utilizing a chi-square analysis of experimental vs. control pretest and posttest congruence of primary

occupation considered and summary rating. These analyses tested for the statistical significance of between group differences in growth on the various measures. The .10 level of significance was stipulated for all analyses.

All analyses of effect utilized matched pretest-posttest data pairs. These data pairs represented that portion of the originally drawn samples which had not been eliminated by either attrition from the program or testing absence. An integral part of the analysis plan was to test for the representativeness of the analyzed pairs in relation to the original samples. The availability of virtually complete pretest data enabled exhaustive tests of representativeness. These were performed on E1 and C1 data only, as the absolute numbers of withdrawn cases in other samples were too small to allow meaningful analyses. Findings of significant unrepresentativeness called for analyses stratified by the variable(s) involved. This required modification of the planned analyses for groups indicating unrepresentative factors. The effects of subject self-elimination were thus studied through analyses of data representativeness. The results of this study are reported in the beginning of Section VI, Results.

In summary, the analysis plan provided for testing growth within the experimental groups (E1 and E2) and relative progress between the experimental and control groups (E1 vs. C1 and E2 vs. C2). Each hypothesis was tested using effects demonstrated by both first year and second year students. The first year groups had true experimental characteristics, while the second year groups were of quasi-experimental composition. A series of instruments was administered on a pretest-posttest schedule

to measure variables representing career skills, life skills, and basic skills. Hypothesized effects were tested using t-tests, chi-square analyses, and analyses of variance and covariance. Analyses of final data pair representativeness were included. This design was viewed as a comprehensive one, allowing investigation of major areas of intended program effect under conditions of first year and second year exposure.

VI. Results

This section presents analyses related to the student effects of the RBS Career Education Program during the 1974-1975 school year. Two types of analyses are included: data representativeness and testing of hypotheses.

Data representativeness analysis is a preliminary step in hypothesis testing. The representatives results determine the comparability of final data pairs with the original samples for the true experimental and control groups (E1 and C1). This procedure assesses the integrity of the final groups in terms of the original randomized design. Since the quasi-experimental groups (E2 and C2) do not assume initial equivalence, sufficient estimates of final comparability are provided by "t" tests performed on each variable pretest during the course of hypothesis testing.

After data representativeness has been ascertained, each hypothesis is tested in accordance with the analysis plan described above in the design section. Changes in the plan are those occasioned by the data representativeness results. Each hypothesis is tested using first year (E1 and C1) results and parallel second year (E2 and C2) results.

Data Representativeness

The E1 and C1 groups were originally formed by random assignment from a common pool of applicants for the Career Education Program. The objective of this random assignment procedure was the establishment of true experimental conditions wherein comparative student effects (E1 vs. C1) could be tested with maximum student group equivalence. Two factors which typically affect the assurances provided by a randomized design are

student attrition during the treatment period (see Section III) and student absences during testing sessions. Both factors reduce the number of complete data pairs available for posttest analyses, thereby potentially introducing biases into the once randomly distributed array of subject characteristics. To the degree that the characteristics of the missing cases are known, the extent of these biases may be estimated and accounted for in hypothesis testing. The RBS true experimental design requires that all subjects be pretested before randomization, thus assuring that entry characteristics will be known and enabling analysis of the representativeness of final data pairs.

For the EI group, the eliminated subgroup equalled 41.3 percent of the original sample while the retained subjects were 58.7 percent of the original sample. For the CI group, the figures were 37.2 percent eliminated and 62.8 percent retained. The groups were thus substantially reduced over the year, with approximately three-fifths of the initial samples available for final analyses.

The eliminated and retained subject subgroups formed the samples for analyses of data representativeness. The following pretest data had been collected on all subjects for use in these analyses:

1. Grade Level
2. Sex
3. Race
4. Father's Occupation
5. Mother's Occupation
6. Immediate Occupational Plans
7. Achievement Level

For each of these variables the pretest results obtained from the retained subgroups were compared with analogous results from the eliminated

subgroups. The degree to which these subgroups were found to be statistically similar was proposed as an index of the degree to which the final data pairs were representative of the original random samples and the true experimental design had remained intact.

The statistical tests employed were chi-square analyses for categorical variables and "t" tests for the one continuous variable, achievement level. Within each category the observed and expected frequencies were calculated for the retained and eliminated subgroups. Chi-square tests comparing the subgroups were then performed. For achievement level the CTBS means of the retained and eliminated subgroups were compared using "t" tests for independent samples. These analyses were completed for the subgroups of both the EI and CI samples.

These extensive analyses yielded significant chi-square values related to only one variable, grade level. In all other respects the EI retained and eliminated subgroup characteristics and the CI retained and eliminated subgroup characteristics were found to be statistically not different.

In terms of grade level significantly more ninth graders and significantly fewer eleventh graders than expected were found in the CI eliminated subgroup. Also, significantly more eleventh graders than expected were found in the CI retained subsample. The effect of this grade level disproportion was to render the CI group older than the EI group. The average CI grade level was 10.759 compared with 10.409 for the EI group. This demonstrated one element of unrepresentativeness created by differential group attrition and suggested the need for stratified

analyses in testing comparative (E1 vs. C1) hypotheses. The grade level disproportion could likely affect dependent variable scores to the disadvantage of the E1 group. This could be controlled using analyses of effect stratified by grade level.

Overall, in spite of the substantial sizes of the eliminated subgroups, the final data pairs appeared to be strongly representative of the initial random samples. Significant factors affecting representativeness were found related to grade level only. On all other criteria the final data were found to be representative. It can be concluded that the random design remained intact to the degree that the variables investigated constitute an adequate index. The single exception, grade level, suggests the need for stratified analyses of comparative hypotheses (E1 vs. C1).

Testing of Hypotheses

The RBS Career Education Program hypothesized student effects in three general areas: (1) career skills, (2) life skills, and (3) basic skills. Altogether, ten hypotheses of student effects were to be tested using the instruments and statistical procedures outlined in Section V of this report. One deviation from the intended analysis design occurred and reflected the findings of data representativeness. The differential group composition of the E1 and C1 groups necessitated the stratification by grade for all between group hypotheses; this stratification in turn demanded an abandonment of the analyses of covariance since the procedure is not robust with regard to potential interaction effects. Stratification was not applied to the testing of within group hypotheses since the

remaining experimental groups were representative of the initial experimental groups. All hypotheses contain tests for both first year and second year effects.

Areas of hypotheses were tested in the following sequence: Career Skills, Life Skills, and Basic Skills. Each area of intended effect is presented separately.

Career Skills. Four hypotheses were generated to test program impact on career skills development. Two (1 and 3) deal with within group acquisition of career knowledge and maturity and two (2 and 4) deal with between group differences in career knowledge and maturity. Specific hypothesis testing is presented below.

Hypothesis 1. Experimental students will acquire increased mastery in career knowledge.

The hypothesis that experimental students would acquire increased mastery in career knowledge was tested by comparing the pretest and posttest performances of the E1 and E2 groups on the Occupational Information and Planning subtests of the Career Maturity Inventory (CMI). Comparisons were conducted through the performances of one-tailed correlated "t" tests on these data. Table 25 presents these comparisons.

Table 25

Career Maturity Inventory Experimental Groups

Group	Subtest	Pretest	Posttest	"t"
E1	Occupational Information	12.77	14.07	3.87*
n = 143	Planning	10.34	11.84	4.19*
E2	Occupational Information	15.34	116.34	1.79*
n = 35	Planning	12.89	13.82	1.00

* critical value for "t" = 1.310 when df $\geq$ 30 for one way "t" test.

The comparisons indicated that the E1 and E2 groups acquired increased mastery on both subtests of the CMI. The increased mastery was at the level of statistical significance for both subtests for the E1 group and for the Occupational Information subtest for the E2 group. The hypothesized effect was thus realized fully for the first year students (E1) and partially for the second year students (E2).

Hypothesis 2. Experimental students will acquire significantly greater mastery in career knowledge than control students in a traditional high school.

The hypothesis that experimental students would acquire significantly greater mastery in career knowledge than control students in a traditional high school was tested by comparing the pretest and posttest performances of the E1 and C1 groups and the E2 and C2 groups on the Occupational Information and Planning subtests of the CMI. Comparisons for the E1 and C1 groups were conducted through the performance of analyses of variance stratified by grade level for pretest and then posttest performance. Comparisons for the E2 and C2 groups were conducted through the performance of "t" tests. Table 26 presents CMI Occupational Information subtest results for the E1 and C1 groups. Table 27 presents CMI Planning subtest results for the E1 and C1 groups. Table 28 presents CMI Occupational Information and Planning results for the E2 and C2 groups.

Table 26

CMI - Occupational Information E1 and C1 Groups

CMI 2	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	11.56	12.38	11.70	13.67	11.13	13.20
10	12.31	12.00	12.25	14.65	13.50	14.44
11	13.40	13.67	13.49	13.75	14.09	13.87
12	13.69	15.60	14.14	15.13	17.00	15.57
All	12.77	13.46	12.95	14.05	13.85	13.99

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	47.4548	3.4028
Group	1	7.7733	0.5574
Grade X Group	3	4.1913	0.3005
Error	187	13.9458	

Posttest

Source	df	MS	F
Grade	3	29.1808	1.8368
Group	1	1.6144	0.1016
Grade X Group	3	21.0132	1.3227
Error	187	15.8868	

Critical value $F_{(1,187;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,187;\ \alpha = .10)} \geq 2.12$

Table 27

CMI - Planning E1 and C1 Groups

CMI 4	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	9.08	11.88	9.59	11.50	9.38	11.11
10	10.85	11.83	11.03	12.38	12.17	12.34
11	10.29	11.61	10.73	11.46	12.48	11.81
12	12.50	12.80	12.57	13.25	11.40	12.81
All	10.34	11.79	10.72	11.84	11.87	11.85

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	43.7320	2.3513
Group	1	75.6301	4.0664
Grade X Group	3	6.0840	.3271
Error	187	18.5991	

Posttest

Source	df	MS	F
Grade	3	17.0599	0.5918
Group	1	0.0039	0.0022
Grade X Group	3	21.9142	1.2741
Error	187	17.2009	

Critical value $F_{(1,187;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,187;\ \alpha = .10)} \geq 2.12$

Table 28

CMI - E2 and C2 Groups

Group	Subtest	Pretest	Posttest	"t"
E2	Occupational Information	15.34	16.34	1.27
	Planning	12.89	13.82	.75
C2	Occupational Information	14.12	13.35	3.52*
	Planning	12.04	11.77	1.99*

*$p < .01$ at df_a when $t \geq 1.29$ for a 1-tailed test
$p < .01$ at df_a when $t \geq 2.58$ for a 2-tailed test

The analysis of variance for the CMI Occupational Information subtest for the E1 and C1 groups indicated no pretest group difference; there was a pretest grade difference for both groups which reflected a possible grade-linked developmental pattern for the acquisition of career knowledge. The posttest analysis of variance for the CMI Occupational Information measure indicated no group or grade differences.

The analysis of variance for the CMI Planning subtest indicated a pretest group difference with the C1 group having significantly higher pretest scores than the E1 group; this difference did not exist on the posttest. There were no grade differences on either the pretest or posttest of this criterion measure.

The comparison of the pretest levels of the E2 and C2 groups indicated no difference on either subtest of the CMI. The posttest analysis indicated that the E2 group had a significantly greater mastery of career knowledge than did the C2 groups on both the Occupational Information and Planning subtests of the CMI.

The between group analyses of career knowledge mastery thus indicated that second year experimental students acquired significantly more career knowledge mastery than their comparison counterparts. The analysis for first year effects indicated that first year experimental students began at a significantly lower level of career knowledge mastery than their control counterparts and narrowed the difference to a virtual level of equality over the course of the year. The hypothesis that experimental students would acquire significantly greater mastery than control students is strongly supported by the second year results. The first year results offer additional, but not statistically significant, support for the hypothesis.

Hypothesis 3. Experimental students will acquire increased career maturity.

The hypothesis that experimental students would acquire increased career maturity over the course of the year was tested by conducting comparisons of the pretest and posttest levels of performance on the Attitude Toward Career Knowledge subtest of the Career Attitude Survey (CAS) and the pretest and posttest congruence of primary code and primary occupation considered on the Self Directed Search (SDS). The appropriate statistical test for the former comparisons was a one-tailed correlated "t" test; the appropriate statistical procedure for the latter was a chi-square analysis. Comparisons were conducted for both the E1 and E2 groups. The analyses of career maturity are presented in Table 29.

Table 29

Career Maturity E1 and E2 Groups

Group	Measure	Pretest	Posttest	"t"	χ^2
E1	Attitude Toward Career Knowledge n = 143	35.44	35.96	0.92	----
	SDS Congruence n = 131	66/131	42/131	----	----
E2	Attitude Toward Career Knowledge n = 35	37.29	38.06	0.65	----
	SDS Congruence n = 35	13/35	11/35	----	----

The comparisons indicated a slight, but statistically not significant, increase for the E1 and E2 groups' Attitude Toward Career Knowledge and a decrease in SDS congruence for both groups. Since the SDS congruence was less on the posttest, no formal analyses were conducted.

The results offer no support for the hypothesis that experimental students would acquire increased career maturity.

Hypothesis 4. Experimental students will acquire significantly greater career maturity than control students in a traditional high school.

The hypothesis that experimental students would acquire significantly greater career maturity than control students in a traditional school was tested by comparisons of the pretest and posttest scores on the Attitude Toward Career Knowledge (ATCK) subtest of the CAS and congruence on the SDS. These comparisons were conducted for the E1 vs. C1 groups and the E2 vs. C2 groups.

E1 and C1 performance on the ATCK was compared through analyses of variance of the pretest and posttest scores. Table 30 presents these analyses.

Table 30

Attitude Toward Career Knowledge
E1 and C1 Groups

ATCK	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	33.18	34.38	33.39	34.11	28.38	33.11
10	35.44	34.50	35.26	34.40	34.83	34.48
11	36.27	35.00	35.84	36.79	34.78	36.12
12	37.56	39.00	37.85	39.50	40.00	39.60
All	35.44	35.16	35.37	35.96	34.18	35.49

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	109.2237	3.9814
Group	1	10.0923	0.3713
Grade X Group	3	14.7952	0.5443
Error	184	27.1823	

Posttest

Source	df	MS	F
Grade	3	222.4233	7.9037
Group	1	164.7753	5.8552
Grade X Group	3	46.6252	1.6568
Error	184	28.1417	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

The analysis of variance of the ATCK pretest scores indicated no between group difference. There was a significant grade difference which reflected a possible grade linked development of career maturity. The posttest analysis of variance indicated significant grade and group differences; E1 posttest performance on the ATCK was significantly higher than C1 performance. The grade differences were again identified and reinforced the stratification used in the analyses.

Comparisons of E1 and C1 congruence on the SDS were conducted through the performance of chi-square analyses on pretest and posttest data. These analyses are presented in Table 31.

Table 31

SDS Congruence
E1 and C1 Groups

	E1						C1						All			
	Yes			No			Yes			No			Yes		No	
PRETEST	fo	fe	χ^2	fo	fe	χ^2	fo	fe	χ^2	fo	fe	χ^2	fo	χ^2	fo	χ^2
9	19	18.1	0.0448	15	12.1	0.6950	4 (4.5)	4.9	0.0327	2 (2.5)	4.9	1.1756	23	0.0775	17	1.8706
10	14	11.8	0.4102	10	10.0	0.0000	1 (1.5)	3.2	0.9031	4	4.0	0.0000	15	1.3133	14	0.0000
11	23	27.5	0.7364	31	35.0	0.4571	12	7.5	2.7000	18	14.0	1.1429	35	3.4364	49	1.6000
12	10	8.6	0.2279	9 (8.5)	7.9	0.4556	1 (1.5)	2.4	0.3375	2 (2.5)	3.1	0.1161	11	0.5654	11	.5717
All	66	----	------	65	----	------	18	----	------	26	----	------	84	5.3926	91	4.0423
POSTTEST																
9	7 (6.5)	6.6	0.0015	27	23.0	0.6957	1 (1.5)	1.4	0.0071	5 (5.5)	9.0	1.3611	8	0.0086	32	2.0568
10	6 (6.5)	6.6	0.0015	18	15.1	0.5570	2 (1.5)	1.4	0.0071	3 (3.5)	5.9	0.9763	8	0.0086	21	1.5333
11	18	18.9	0.0429	36	43.8	1.3890	5 (4.5)	4.1	0.0390	25	17.2	3.5372	23	0.0819	61	4.9262
12	11	9.9	0.1222	8 (7.5)	7.2	0.0125	1 (1.5)	2.1	0.1714	2 (2.5)	2.8	0.3214	12	0.2936	10	0.3333
All	42	----	------	89	----	------	9	---	------	35	----	------	51	0.3927	124	8.8502

Critical value χ^2 (df = 1) = 2.706

Critical value χ^2 (df = 1) = 6.251

The overall chi-square value for the pretest indicated no significant between group difference in SDS congruence. One internal pretest chi-square was significant and indicated that more eleventh grade C1 students than was expected had SDS congruence.

The posttest chi-square analysis indicated a significant between group difference in lack of SDS congruence. The C1 group had significantly less SDS congruence than was expected. This significance was accounted for primarily by the greater than expected lack of SDS congruence.

Comparisons for the E2 and C2 groups on the ATCK were conducted through the performance of "t" tests on the pretest and posttest scores. Table 32 presents these analyses.

Table 32

Attitude Toward Career Knowledge
E2 and C2 Groups

Administration	Group E2	C2	"t"
Pretest	37.29	37.68	0.26
Posttest	38.06	35.69	1.57

Critical value for two-tailed "t" test, df $\geq$ 30, = 1.697
Critical value for one-tailed "t" test, df $\geq$ 30, = 1.310

The pretest analysis indicated no between group difference. The E2 group performed significantly higher than the C2 group on the posttest of the ATCK.

Comparisons of the E2 and C2 groups for SDS congruence were conducted through the performance of chi-square analyses on pretest and posttest data. These analyses are presented in Table 33.

Table 33

SDS Congruence
E2 and C2 Groups

	E2			C2			All	
PRETEST	fo	fe	χ^2	fo	fe	χ^2	fo	χ^2
Yes	13	1	0.5625	14	11.0	0.8182	27	1.3807
No	22	19.0	0.4737	10	13.0	0.6923	32	1.1660
All	35			24			59	2.5467
POSTTEST								
Yes	11	15.4	1.2571	15	10.6	1.8264	26	2.9835
No	24	19.6	0.9878	9	13.4	1.4448	33	2.4326
All	35			24			59	5.4161

Critical value for χ^2 (df = 1) = 2.706

The pretest chi-square analysis indicated no between group differences in SDS congruence. The posttest chi-square analysis indicated a significant between group difference in SDS congruence; this finding was primarily accounted for by the greater than expected congruence of the C2 group.

The hypothesis that experimental students would acquire significantly greater career maturity than control students is offered strong support by results on the ATCK; both first year and second year experimental students had significantly higher posttest scores than their control counterparts. The index of SDS congruence offers scant to no support for the hypothesis. Scant support is given by the finding that first year control students showed a significantly greater lack of congruence than could be expected. No support is given to the hypothesis by the finding that second year control students showed a significantly greater degree of SDS congruence than expected.

Hypothesis testing of career skill development thus centered around two within group tests and two between group tests of the issues of career knowledge and career maturity. The findings indicated that there was significant first and second year within group experimental growth in career knowledge. This significant within group growth reached a magnitude in the second year sufficient to produce between group differences in favor of the experimental students.

This issue of career maturity is less clear. There is no evidence of significant within group growth on this criterion. Significant between group differences in favor of first and second year experimental students were found on one criterion, the ATCK. However, the other criterion of career maturity produced contradictory results. First year control students

had a significantly lower level of SDS congruence than could be expected, while second year control students had a significantly higher level of SDS congruence than could be expected.

Thus, while the evidence is clearly in support of increased career knowledge as an effect of the RBS Career Education Program, it is equivocal concerning the program's effect on increased career maturity.

Life Skills. The RBS Career Education Program was hypothesized to have impact on life skills development. Two criteria were selected as indices of life skills development: attitude toward learning environments and self-concept. Four hypotheses were constructed to assess program impact on these criteria. Two (5 and 7) deal with within group growth by the experimental students and two (6 and 8) deal with the relative growth of the experimental students compared to their control counterparts. Specific hypothesis testing is presented below.

Hypothesis 5. Experimental students will acquire increased positive attitudes toward learning environments.

The hypothesis that experimental students would acquire increased positive attitudes toward learning environments was tested by comparing pretest and posttest performances of the E1 and E2 groups on the subtests of the Assessment of Student Attitudes Toward Learning Environments Scale (ASA). Comparisons were conducted through the performance of one-tailed correlated "t" tests on these data. Table 34 presents these analyses.

Table 34

Assessment of Student Attitudes Toward Learning Environments
E1 and E2 Groups

Group	Subtest	Pretest	Posttest	"t"
E1	Education in General	34.49	34.57	0.1060
	School Curriculum	33.40	35.86	3.2958
n = 138	School Resources	32.85	33.33	0.8886
	School Counseling	32.49	34.85	3.3561
	Overall Attitude Toward Learning Environments	33.29	34.32	2.1375
E2	Education in General	33.53	36.81	2.2351
	School Curriculum	33.47	36.78	2.3770
n = 36	School Resources	33.67	35.81	2.0620
	School Counseling	34.28	37.81	2.1111
	Overall Attitude Toward Learning Environments	33.67	36.47	2.7118

Critical value for one tailed "t" test, df $\geq$ 30, = 1.310

The comparisons indicated that the E1 and E2 groups acquired increased positive attitudes toward learning environments. The E2 group showed significant increases on all five subtests of the ASA and the E1 group showed significant increases on three subtests of the ASA. There is, thus, strong support for accepting the hypothesis.

Hypothesis 6. Experimental students will develop significantly more positive attitudes toward learning environments than control students in a traditional school.

The hypothesis that experimental students would develop significantly more positive attitudes toward learning environments than their control counterparts was tested by comparing the pretest and posttest performance of the E1 and C1 and E2 and C2 groups on the Assessment of Student Attitudes Toward Learning Environments Scales (ASA). Comparisons for the E1 and C1 groups were conducted through the performance of analyses of variance stratified for grade level. Comparisons for the E2 and

C2 groups were conducted through the performance of "t" tests. Tables 35, 36, 37, 38, and 39 present the analyses for the E1 and C1 groups. Table 40 presents the analyses for the E2 and C2 group.

Table 35

ASA Attitude Toward Education in General

First Year Students

ASA1	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	33.66	29.88	33.00	32.74	26.13	31.59
10	31.60	31.67	31.61	33.68	31.50	33.26
11	33.41	35.63	34.16	35.46	33.19	34.69
12	32.25	36.00	33.00	36.81	28.75	35.20
All	33.03	34.26	35.35	34.57	31.50	33.77

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	59.5445	.6414
Group	1	32.7427	.3850
Grade X Group	3	70.2376	.8260
Error	183	85.0397	

Posttest

Source	df	MS	F
Grade	3	116.4939	2.9311
Group	1	458.7494	11.5426
Grade X Group	3	56.9296	1.4324
Error	184	39.7441	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 36

ASA Attitude Toward School Curriculum

First Year Students

ATT2	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	33.24	33.63	33.30	34.34	31.38	33.83
10	33.16	37.33	33.97	35.00	35.33	35.06
11	30.91	34.31	32.05	36.83	36.28	36.64
12	31.50	34.25	32.05	37.00	37.50a	37.10
All	31.99	34.56	32.66	35.86	35.48	35.76

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	38.2024	.5893
Group	1	300.8193	4.6410
Grade X Group	3	18.3614	.2833
Error	184	64.8233	

Posttest

Source	df	MS	F
Grade	3	98.5560	2.2075
Group	1	21.7690	.4856
Grade X Group	3	14.6777	.3274
Error	184	44.8272	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 37

ASA Attitude Toward School Resources

First Year Students

ATT3	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	35.53	32.00	32.43	33.08	30.75	32.67
10	29.24	30.67	29.52	32.16	31.67	32.06
11	31.67	32.75	32.03	33.40	31.97	32.92
12	31.56	36.25	32.50	35.50	32.50	34.90
All	31.46	32.66	31.77	33.33	31.78	32.93

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	64.9884	1.0991
Group	1	47.8179	.8087
Grade X Group	3	19.6930	.3330
Error	184	59.1287	

Posttest

Source	df	MS	F
Grade	3	34.6244	1.1173
Group	1	92.7669	2.9935
Grade X Group	3	5.4448	.1757
Error	184	30.9893	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 38

ASA Attitude Toward School Counseling

First Year Students

ATT4	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	32.63	27.50	31.74	33.13	32.75	33.07
10	29.76	26.33	29.10	32.52	27.00	31.45
11	31.05	31.94	31.35	35.70	30.81	34.05
12	29.88	37.00	31.30	39.25	26.00	36.60
All	31.11	30.96	31.07	34.85	30.28	33.66

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	49.8877	.6369
Group	1	2.1637	.0276
Grade X Group	3	135.9783	1.7359
Error	184	78.3289	

Posttest

Source	df	MS	F
Grade	3	118.3254	2.4247
Group	1	856.8969	17.5593
Grade X Group	3	119.9649	2.4583
Error	184	48.8000	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 39

ASA Overall Attitude Toward Learning Environments

First Year Students

ATT5	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	32.89	31.00	32.57	33.08	29.75	32.50
10	30.60	31.33	30.74	33.08	31.33	32.74
11	31.89	32.63	32.47	34.92	32.72	34.19
12	31.50	35.75	32.35	36.81	31.00	35.65
All	31.89	33.10	32.20	34.32	31.94	33.70

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	26.5347	.4718
Group	1	47.9434	.8524
Grade X Group	3	33.3820	.5935
Error	184	56.2452	

Posttest

Source	df	MS	F
Grade	3	64.1786	2.5511
Group	1	255.7515	10.1661
Grade X Group	3	14.4153	.5730
Error	184	25.1572	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 40

Assessment of Student Attitudes

Second Year Students

Administration	Subtest	Group E2 n = 36	Group C2 n = 25	"t"
Pretest	ASA Education In General	33.53	34.88	.70
	ASA School Curriculum	33.47	35.88	1.76
	ASA School Resources	33.67	33.16	.92
	ASA School Counseling	34.28	31.44	1.19
	ASA Overall Attitude Toward Learning Environments	33.67	33.64	.02
Posttest	ASA Education In General	36.81	32.44	3.76
	ASA School Curriculum	36.78	33.08	2.16
	ASA School Resources	35.81	31.88	2.30
	ASA School Counseling	37.81	29.04	4.51
	ASA Overall Attitude Toward Learning Environments	36.47	31.48	4.99

Critical value for two-tailed "t" test, df $\geq$ 30, = 1.697

Critical value for one-tailed "t" test, df $\geq$ 30, = 1.310

The pretest analyses for the first year students indicated only one significant difference. The C1 group had a significantly more positive attitude toward school curriculum than did the E1 group. The posttest analyses revealed that the E1 group had significantly more positive attitudes than the C1 group on 4 of the 5 subtests of the ASA: Education in General, School Resources, School Counseling, and Overall Attitude Toward Learning Environments. Significant grade differences were observed on the posttest of 3 subtests: Education in General, School Counseling, and Overall Attitude Toward Learning Environments.

The analyses of second year effects revealed no pretest differences between the E2 and C2 groups. The posttest analyses indicated that the E2 group had a significantly more positive attitude than the C2 group on all subtests of the ASA.

There is overwhelming support for the hypothesis than experimental students gain significantly more positive attitudes toward learning

environments than do control students in a traditional high school. First year students demonstrated attitudinal superiority on 4 of 5 ASA subtests when compared to control counterparts. Second year students had significantly more positive attitudes than control students on all five ASA subtests. Thus, both first and second year students offered support for the hypothesis.

Hypothesis 7. Experimental students will acquire increased positive attitudes toward self.

The hypothesis that experimental students would acquire increased positive attitudes toward self was tested by comparing the pretest and posttest performance of the E1 and E2 groups on measures of self-concept. Two indices of self-concept were used: The Berger Acceptance of Self Scale (BASS) and the total scores of the SDS. The former is a traditional assessment of self-concept. The latter is a measure of perceived competencies and is an indirect measure of self-concept.

Comparisons of the BASS scores were conducted through the performance of one-tailed correlated "t" tests. Table 41 presents the analyses of the BASS.

Table 41

Berger Acceptance of Self-Scale

E1 and E2 Groups

Group	Pretest	Posttest	"t"
E1 n = 141	35.092	33.817	----
E2 n = 35	36.257	36.139	----

The comparisons of the BASS scores indicated that neither the E1 nor E2 group demonstrated increased positive attitudes toward self. Change in the E2 group was negligible while change in the E1 group indicated a substantial decrease in self-concept.

Change in perceived competency as indicated by the categories of the SDS can be interpreted in various ways. The congruence, or match between summary code and primary occupation considered, was used earlier as an index of career maturity. The total scores for the categories indicate the overall perception of competency by individuals or groups. They can be categorized as realistic, investigative, artistic, social, enterprising, or conventional to varying degrees. The SDS has real and theoretical limits for the expression of competency within each of these areas. Theoretically, each category can have a maximum score of 50, and the total score for all categories could be 300. In a practical sense, these limits are rarely reached. Rather there seems to be a general pool of competencies which can be assigned by an individual or group to the categories of the SDS; this practical pool is much lower than the theoretical pool.

The SDS was administered on a pretest and posttest basis. Analyses were conducted on the total categorical scores. These analyses are presented in Table 42.

Table 42

Self-Directed Search

Total Scores
E1 and E2 Groups

Group	Measure	Pretest	Posttest	"t"
E1	SDS Realistic	17.754	14.370	- 3.4918
	SDS Investigative	22.101	15.500	- 6.4874
	SDS Artistic	28.710	19.478	-10.9800
	SDS Social	21.174	25.630	6.2545
	SDS Enterprising	20.428	19.145	- 1.3964
	SDS Convention	4.587	19.283	16.1228
Total		114.754	113.406	
E2	SDS Realistic	22.800	15.314	- 3.3546
	SDS Investigative	22.429	17.600	- 1.9995
	SDS Artistic	29.457	17.571	- 6.2243
	SDS Social	22.771	25.286	1.4349
	SDS Enterprising	19.371	22.257	1.3836
	SDS Conventional	5.286	18.400	6.4562
Total		122.114	116.428	

Critical value for two-tailed "t", df $\geq$ 30, = 1.697

The first finding identified by the analyses is a confirmation of a pool of perceived competency. The pretest total of all competencies for the E1 group was within 2 points of the posttest total. The pretest total for the E2 group was within 6 points of the posttest total.

The confirmation of a pool of competency which can be assigned to the six categories of the SDS makes the interpretation of the findings easier. Each increase in perceived competency necessitates a decrease in perceived competency elsewhere. Changes in perceived competency then become the measure of interest. Where the shifts occur and in what direction is then the issue to be investigated.

The findings on the SDS indicated that major shifts in perceived competency are occurred for both the E1 and E2 groups. The E1 group demonstrated significant increases in perceived social and conventional competencies and significant decreases in perceived realistic,

investigative, and artistic competencies. The E2 group demonstrated a significant increase in social competency and significant decreases in realistic, investigative, and artistic competencies. For both groups, the shift in perceived competencies was in the direction of occupational and life goals which are consistent with the demographic characteristics of their parents. As such, these shifts can be viewed as an increase in the congruency of self-concept and demographic and parental expectancies.

Obviously, the relationships between self-perceptions expressed on the SDS and evolving self-concept need further investigation. However, the data seem to indicate an increasing realism of self-perceived competency for both the E1 and E2 groups.

There is, thus, apparently conflicting evidence with which to weigh the hypothesis that experimental students would acquire increased positive self-concept. The BASS offers no support for the hypothesis. The SDS, however, indicates that experimental students are forming more realistic perceptions of their competencies. Perhaps, these more realistic self-perceptions are the basis of a later more positive self-concept as indicated by traditional psychometry.

Hypothesis 8. Experimental students will develop significantly more positive attitudes toward self than control students in a traditional high school.

The hypothesis that experimental students would develop significantly more positive attitudes toward self than control students in a traditional high school was tested by comparing the pretest and posttest performance of the E1 vs. C1 and E2 vs. C2 groups on measures of self-concept.

The measures of self-concept used were the BASS and SDS. Comparisons for the first year groups were conducted by performing analyses of variance stratified for grade level on the pretest and posttest data. Comparisons for the second year students were conducted through the performance of "t" tests on the pretest and posttest data. Table 43 presents the BASS analysis for the E1 and C1 groups. Table 44 presents SDS Total Scores for the E1 and C1 groups. Tables 45, 46, 47, 48, 49, and 50 present the first year analyses of variance on the SDS total scores. Table 51 present the BASS analyses for the second year students. Table 52 presents the SDS Total Score analyses for the E2 and C2 groups.

Table 43

Berger Acceptance of Self Scale

E1 and C1 Groups

	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	32.08	32.75	32.20	31.55	31.50	31.54
10	34.64	34.33	34.58	32.68	33.50	32.84
11	36.25	38.00	36.84	34.97	34.28	34.74
12	36.19	41.75	37.30	36.44	38.50	36.85
All	34.85	37.02	35.41	33.82	34.08	33.89

Analysis of Variance

Pretest

Source	df	MS	F
Grade	3	254.2919	9.8164
Group	1	93.1529	3.5960
Grade X Group	3	24.6619	0.9520
Error	184	25.9048	

Posttest

Source	df	MS	F
Grade	3	176.3672	6.6702
Group	1	0.5297	0.0200
Grade X Group	3	8.7901	0.3313
Error	184	26.5310	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 44

SDS Total Scores
E1 and C1 Groups

Subtest	E		C	
	Pretest	Posttest	Pretest	Posttest
SDS Realistic	17.75	14.37	19.22	12.39
SDS Investigative	22.10	16.35	22.35	15.63
SDS Artistic	28.71	19.48	30.25	19.63
SDS Social	21.17	25.63	21.33	24.61
SDS Enterprising	20.43	19.14	21.92	19.37
SDS Conventional	4.59	19.28	3.60	19.69
Total	114.59	114.25	118.67	111.32

Table 45

SDS Realistic Total Scores

E1 and C1 Groups

	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	16.40	21.25	17.26	16.43	17.50	16.62
10	17.46	18.83	17.73	17.33	12.17	16.30
11	18.54	18.58	18.55	12.52	11.24	12.06
12	18.33	21.00	18.81	12.22	12.00	12.18
All	17.75	19.22	18.15	14.37	12.39	13.84

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	21.7281	0.3360
Group	1	64.0667	0.9908
Grade X Group	3	40.8952	0.6324
Error	181	64.6670	

Posttest

Source	df	MS	F
Grade	3	293.3854	2.6096
Group	1	58.2065	.5177
Grade X Group	3	37.4738	.3333
Error	181	112.4254	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

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SDS Investigative Total Scores

EI and CI Groups

	PRETEST			POSTTEST		
Grade	EI	CI	All	EI	CI	All
9	18.73	21.00	19.13	15.43	16.00	15.53
10	24.00	27.17	24.63	17.03	17.83	17.19
11	23.02	21.91	22.62	16.68	14.94	16.06
12	23.50	21.50	23.13	16.28	17.25	16.46
All	22.10	22.35	22.17	16.35	15.63	16.16

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	212.0466	2.3843
Group	1	.0006	.0000
Grade X Group	3	40.3669	.4539
Error	181	88.9345	

Posttest

Source	df	MS	F
Grade	3	51.7885	.6226
Group	1	7.3712	.0886
Grade X Group	3	.7653	.0092
Error	181	83.1847	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 47

SDS Artistic Total Scores

EI and CI Groups

	PRETEST			POSTTEST		
Grade	EI	CI	All	EI	CI	All
9	25.13	25.87	25.26	17.62	17.50	17.60
10	26.42	31.50	27.44	21.42	21.30	21.40
11	30.32	30.33	30.32	19.46	19.67	19.53
12	33.83	36.50	34.32	20.78	21.00	20.82
All	28.71	30.25	29.13	19.48	19.63	19.52

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	418.5841	6.9557
Group	1	9.6566	.1605
Grade X Group	3	51.4479	.8549
Error	181	60.1786	

Posttest

Source	df	MS	F
Grade	3	103.0034	1.4798
Group	1	.4359	.0063
Grade X Group	3	.2604	.0037
Error	181	69.6063	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 48

SDS Social Total Scores

E1 and C1 Groups

	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	18.78	18.87	18.80	22.57	19.75	22.07
10	22.04	21.50	21.93	25.25	25.83	25.37
11	21.42	21.88	21.58	26.07	25.85	25.99
12	24.11	21.50	23.63	31.00	22.25	29.41
All	21.17	21.33	21.21	25.63	24.61	25.35

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	139.8813	2.2735
Group	1	.0234	.0004
Grade X Group	3	9.3794	.1524
Error	181	61.5248	

Posttest

Source	df	MS	F
Grade	3	275.0532	4.4629
Group	1	67.0718	1.0145
Grade X Group	3	79.4555	1.2018
Error	181	66.1135	

Critical value F $(1,180;\ \alpha = .10) \geq 2.74$

Critical value F $(3,180;\ \alpha = .10) \geq 2.12$

Table 49

SDS Enterprising Total Scores

E1 and C1 Groups

	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	16.62	16.50	16.60	15.16	16.87	15.46
10	19.75	21.50	20.10	18.92	14.17	17.97
11	22.39	23.36	22.74	19.98	21.45	20.51
12	22.72	21.50	22.50	24.89	15.00	23.09
All	20.43	21.92	20.83	19.14	19.37	19.20

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	405.9476	5.5125
Group	1	16.3642	.2222
Grade X Group	3	7.7569	.1053
Error	181	73.6413	

Posttest

Source	df	MS	F
Grade	3	387.9928	4.7465
Group	1	4.5432	.0556
Grade X Group	3	162.9732	1.9937
Error	181	81.7429	

Critical value F $(1,180;\ \alpha = .10) \geq 2.74$

Critical value F $(3,180;\ \alpha = .10) \geq 2.12$

Table 50

SDS Conventional Total Scores

E1 and C1 Groups

	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	5.97	5.12	5.82	15.84	17.87	16.20
10	5.42	3.33	5.00	18.33	19.00	18.46
11	3.56	3.36	3.49	21.30	20.76	21.11
12	4.00	3.00	3.82	21.00	15.50	20.00
All	4.59	3.60	4.32	19.28	19.69	19.39

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	61.4908	4.0337
Group	1	14.7604	.9683
Grade X Group	3	4.9619	.3255
Error	181	15.2439	

Posttest

Source	df	MS	F
Grade	3	254.4822	3.1167
Group	1	4.7094	.0577
Grade X Group	3	43.3553	.5310
Error	181	81.6484	

Critical value F $(1,180;\ \alpha = .10) \geq 2.74$

Critical value F $(3,180;\ \alpha = .10) \geq 2.12$

Table 51

Berger Acceptance of Self Scale

E2 and C2 Groups

Administration	E2	C2	"t"
Pretest	36.26	35.20	.66
Posttest	36.14	32.76	2.32

Table 52

SDS Total Scores
E2 and C2 Groups

Administration	Subtest	E2 n = 35	C2 n = 24	"t"
Pretest	SDS Realistic	22.80	19.79	15.521
	SDS Investigative	22.43	23.33	- 2.814
	SDS Artistic	29.46	29.63	- .838
	SDS Social	15.31	16.63	- 3.038
	SDS Enterprising	17.60	14.08	13.974
	SDS Conventional	17.57	20.13	- 8.430
Total		125.17	123.59	
Posttest	SDS Realistic	22.77	22.63	.974
	SDS Investigative	19.37	23.04	-15.194
	SDS Artistic	5.29	5.88	-11.141
	SDS Social	25.29	28.88	-15.550
	SDS Enterprising	22.26	22.54	- 1.648
	SDS Conventional	18.40	22.63	- 8.024
Total		113.38	125.60	

Critical value for two-tailed "t" test, df $\geq$ 30, = 2.042
Critical value for one-tailed "t" test, df $\geq$ 30, = 1.310

The pretest analyses of the first year students' performance on the BASS indicated a significant grade and group difference. The C1 group had significantly higher self-concept as expressed on the BASS than did the E1 group. The posttest analyses indicated a significant grade difference but no between group difference. The grade difference on the posttest reflected a general developmental trend for self-concept. An interesting finding, not related to the hypothesis testing, is a decline in self-concept for all but the twelfth grade E1 students.

The total scores of the E1 and C1 groups on the SDS again confirmed the existence of a practical pool of perceived competency which was distributed throughout the categories of the SDS. The analyses of variance of the total scores of the SDS indicated significant grade differences on all pretest category scores but the SDS Realistic category. These grade differences persisted on the posttest for all but the SDS Investigative and Artistic Total Score categories and appeared on the SDS Realistic Scores. The first year analyses revealed no between group differences on the SDS for the E1 and C1 groups.

The analysis of the second year BASS scores indicated no pretest difference for the E2 and C2 groups. The posttest analysis indicated that the E2 group had a significantly higher self-concept than did the C2 group. This significance was accounted for primarily by the decline in self-concept of the control group.

The second year analysis of SDS Total Scores for the E2 and C2 groups again confirmed a pool of perceived competency which could be distributed throughout the categories of the SDS. On the pretest the E2

group was significantly more realistic and enterprising and significantly less investigative, social, and conventional than the C2 group. On the posttest, the E2 group was significantly less investigative, artistic, social, and conventional in self-perception than the C2 group.

There is thus little support for the hypothesis. There is no between group difference on any posttest for the first year students. Second year students had a significantly higher self-concept as measured by the BASS than did their control counterparts. However, the SDS measures for the second year students offer contradictory evidence.

A summary of the life skills findings indicated an increased positive attitude on the part of first and second year students toward their learning environments. These increases were of a sufficiently great degree to make both experimental groups significantly more positive toward their learning environments than their control counterparts in a traditional high school. The change in attitude toward learning environments was minimally reflected in self-concept. The first and second year students showed an apparent increased realism of perceived competency as indicated by the SDS, while the BASS results did not show significantly positive increases in self-concept. Comparisons of the experimental and control group changes in self-concept identified no significant between group differences for the first year students. Analyses for the second year students were contradictory. E2 students has a significantly higher self-concept on the BASS than did the C2 group, while the C2 group had a significantly greater perception of their competencies as indicated by the SDS Total Scores.

Basic Skills. It was hypothesized that the RBS Career Education Program would have a positive impact on the basic academic skills development of participating students. Two hypotheses were generated to provide specific tests of the impact. The first (9) deals with within group academic development on the part of the experimental students and the second (10) deals with the magnitude of the growth relative to that of control counterparts in a traditional high school. Specific hypothesis testing is presented below.

Hypothesis 9. Experimental students will acquire increased mastery in basic academic skills.

The hypothesis that experimental students would acquire increased mastery in basic academic skills was tested by comparing the pretest and posttest performance of the E1 and E2 groups on subtests of the Comprehensive Tests of Basic Skills (CTBS). The subtests used were Reading Comprehension, Arithmetic Concepts, and Arithmetic Applications. Comparisons were conducted through the performance of one-tailed correlated "t" tests on the E1 and E2 data. In all cases, the comparisons were conducted on standardized scale scores; these have been translated into grade equivalents for the convenience of the reader. Table 53 presents the grade equivalent data for the E1 and E2 groups. Table 54 presents the scale scores and "t" tests for the groups.

Table 53

CTBS Grade Equivalents
E1 and E2 Groups

Group	Subtest	Pretest	Posttest
E1	Reading Comprehension	7.6	7.0
	Arithmetic Concepts	7.5	8.0
	Arithmetic Applications	6.4	7.2
E2	Reading Comprehension	7.8	8.9
	Arithmetic Concepts	8.8	9.0
	Arithmetic Applications	7.9	7.7

Table 54

CTBS Scale Scores
E1 and E2 Groups

Group	Subtest	Pretest	Posttest	"t"
E1	Reading Comprehension	531.00	511.60	-----
	Arithmetic Concepts	505.10	530.50	2.73
	Arithmetic Applications	485.50	510.39	3.33
E2	Reading Comprehension	538.57	565.78	2.71
	Arithmetic Concepts	550.52	557.30	.71
	Arithmetic Applications	532.26	527.52	-----

Critical value for one-tailed "t" test, df $\geq$ 30, = 1.310

Analysis of the first year data indicated a significant within group growth on two of the three subtests of the CTBS. E1 students showed significant increases on the Arithmetic Concepts and Arithmetic Applications subtests. Analysis of the second year data indicated significant within group group on one subtest of the CTBS. E2 students showed a significant increase on the Reading Comprehension subtest of the CTBS. Thus, both first year and second year results offer some support for the hypothesis that experimental students would acquire increased mastery in basic academic skills.

Hypothesis 10. Experimental students will acquire significantly greater mastery in basic academic skills than control students in a traditional high school.

The hypothesis that experimental students would acquire significantly greater mastery in basic academic skills than control students was tested by comparing the pretest and posttest performance levels of the E1 and C1 groups and the E2 and C2 groups on subtests of the CTBS. The subtests used were Reading Comprehension, Arithmetic Concepts, and Arithmetic Applications. Comparisons for the E1 and C1 groups were conducted through the performance of analyses of variance stratified by grade level for pretest and then posttest performance. Comparisons for the E2 and C2 groups were conducted through the performance of "t" tests. All

comparisons were performed on standardized scale scores. For the convenience of the reader, these scores have been translated into grade equivalents. Tables 55, 56, and 57 present the grade equivalents for the E1 and C1 group. Table 58 presents the grade equivalents for the E2 and C2 groups. Tables 59, 60, and 61 present the analyses of variance for the E1 and C1 group data while Table 62 presents the "t" test comparisons of the E2 and C2 data.

Table 55

CTBS Reading Comprehension Grade Equivalents

E1 and C1 Groups

RCGE	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	7.6	6.9	7.4	5.9	6. 7	6.0
10	6.4	7.9	6.7	7.0	7.0	7.0
11	7.6	7.3	7.6	7.3	7.6	7.4
12	9.5	11.5	9.9	8.3	10.7	8.8
All	7.6	7.6	7.6	7.0	7.6	7.1

Table 56

CTBS Arithmetic Concepts Grade Equivalents

E1 and C1 Groups

ACGE	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	7.2	7.6	7.3	8.1	8.4	8.2
10	7.4	7.4	7.4	7.8	8.4	7.8
11	7.6	7.6	7.6	7.8	7.6	7.9
12	8.3	10.4	8.7	8.6	12.1	9.1
All	7.5	7.8	7.6	8.0	8.2	8.0

Table 57

CTBS Arithmetic Applications Grade Equivalents

E1 and C1 Groups

AAGE	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	5.9	6.9	6.0	7.5	7.7	7.5
10	7.2	6.4	7.1	6.9	7.5	7.0
11	6.6	6.9	6.7	7.1	7.6	7.2
12	6.0	6.6	6.1	7.9	9.7	8.3
All	6.4	6.8	6.6	7.2	7.7	7.4

Table 58

CTBS Grade Equivalents
E2 and C2 Groups

Administration	Subtest	E2	C2
Pretest	Reading Comprehension	7.8	7.9
	Arithmetic Concepts	8.8	9.2
	Arithmetic Applications	7.9	7.2
Posttest	Reading Comprehension	8.6	8.3
	Arithmetic Concepts	9.0	8.8
	Arithmetic Applications	7.7	7.9

Table 59

CTBS Reading Comprehension Scale Scores

E1 and C1 Groups

RCSS	PRETEST			POSTTEST		
Grade	E1	C1	All	E1	C1	All
9	529.95	519.89	526.4	479.40	502.00	483.6
10	495.63	539.60	503.2	511.96	511.00	511.9
11	531.90	523.09	528.9	523.09	528.84	525.1
12	586.33	639.75	597.6	548.87	620.50	563.9
All	531.00	531.90	531.2	511.60	516.3	

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	36014.4619	3.1002
Group	1	17.0282	0.0015
Grade X Group	3	7100.9291	0.6113
Error	183	11616.8189	

Posttest

Source	df	MS	F
Grade	3	34522.1316	3.5795
Group	1	7215.3801	0.7481
Grade X Group	3	4474.2752	0.4639
Error	183	9644.4005	

Critical value $F_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value $F_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 60

CTBS A-lithmetic Concepts Scale Scores

E1 and C1 Groups

ACOSS	PRETEST			POSTTEST		
Grade	E1	C1	A11	E1	C1	A11
9	493.68	506.22	496.0	523.73	535.56	525.9
10	501.29	502.00	501.4	511.96	535.60	516.0
11	507.82	509.19	508.3	517.00	508.31	514.0
12	530.73	619.75	549.5	540.40	645.25	562.5
A11	505.1	516.8	508.2	520.5	526.9	522.2

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	13673.5303	2.5789
Group	1	4588.8667	0.8655
Grade X Group	3	7210.7444	1.3600
Error	183	5302.0785	

Posttest

Source	df	MS	F
Grade	3	12948.3382	1.9441
Group	1	3092.3612	0.4643
Grade X Group	3	12185.0267	1.8296
Error	183	6660.3252	

Critical value F $_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value F $_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 61

CTBS Arithmetic Applications Scale Scores

E1 and C1 Groups

AASS	PRETEST			POSTTEST		
Grade	E1	C1	A11	E1	C1	A11
9	465.95	499.33	472.1	517.33	527.56	519.2
10	511.58	483.60	506.8	499.75	516.80	502.7
11	491.03	500.16	494.1	504.60	522.13	510.6
12	473.47	489.00	476.7	531.93	590.25	544.2
A11	485.5	497.5	488.7	510.3	528.0	514.9

Analyses of Variance

Pretest

Source	df	MS	F
Grade	3	9496.2283	1.5298
Group	1	3852.2511	0.6206
Grade X Group	3	3364.9327	0.5421
Error	183	6207.4966	

Posttest

Source	df	MS	F
Grade	3	7773.8914	1.3068
Group	1	13699.9768	2.3030
Grade X Group	3	1832.0214	.3080
Error	183	5948.7997	

Critical value F $_{(1,180;\ \alpha = .10)} \geq 2.74$

Critical value F $_{(3,180;\ \alpha = .10)} \geq 2.12$

Table 62

CTBS Scale Scores

Administration	Subtest	E2	C2	"t"
Pretest	Reading Comprehension	538.57	540.00	.08
	Arithmetic Concepts	550.52	569.48	.84
	Arithmetic Applications	532.26	510.22	.93
Posttest	Reading Comprehension	565.78	549.09	.73
	Arithmetic Concepts	557.30	548.78	.50
	Arithmetic Applications	527.52	531.09	.13

The analyses of the E1 and C1 data identified a significant grade difference in reading comprehension performance on both the pretest and posttest of the CTBS. The differences were consistent from pretest to posttest and reflect a possible grade linked development of reading comprehension. Only one other statistically significant finding was identified in the E1 and C1 data; there was a significant grade difference in the pretest performance on the Arithmetic Concept pretest. The analyses of the E2 and C2 data identified no between group differences in performance on the subtests of the CTBS.

There is no evidence to support the hypothesis that experimental students acquired significantly greater mastery in basic academic skills than control students in a traditional school. Neither the E1 nor E2 group outperformed their control counterparts on subtests of the CTBS.

It was hypothesized that the RBS Career Education Program would have a positive impact on the basic academic skills development of students participating in the program. The testing of hypotheses indicated that both first and second year students gained significantly on some subtests of the CTBS. This development was not significantly better than the basic skills development of control counterparts in a traditional high school.

The RBS Career Education Program hypothesized effect in three areas: career skills, life skills, and basic academic skills. Hypotheses of both within group and between group growth were constructed for each area. Hypothesis were tested for first and second year students.

Career skills hypothesis testing indicated that both first and second year students gained significantly in career knowledge. This gain became sufficiently great in the second year to indicate superior acquisition of career knowledge by experimental students. There was equivocal support regarding career maturity. While neither first nor second year students demonstrated significant within group growth in career maturity, both groups were significantly more mature on one of the measures used. This finding was confounded by the between group results on the second measure. First year control students were less mature and second year control students more mature on the measure of congruence of goals and competencies than experimental students.

Life skill hypothesis testing indicated significant increases in first and second year students attitudes toward learning environments. These increases were of sufficient magnitude in both cases to make experimental students significantly more positive toward their learning environments than their control counterparts. The change in attitude toward learning environments was minimally reflected in change in self-concept. A traditional psychometric instrument revealed no significant increase although self-perceived competency increased in realism for both experimental groups. Second year students were significantly more positive than control counterparts in self-concept and less positive than controls in self-perceived competency. There was no difference in self-concept

or perceived competency for first year students. A finding unrelated to the formal hypothesis testing was the observation that only second year and twelfth grade first year experimental students maintained self-concept over the course of the year; all other groups demonstrated a loss in self-concept. This preservation of self-concept warrants further investigation.

Basic skill hypothesis testing revealed that both first, and second year students gained significantly in some areas of basic skill development. However, this development was not significantly better than control counterparts in a traditional high school.

VII. SUMMARY AND RECOMMENDATIONS

This report has presented the evaluation findings from the 1974-1975 RBS Career Education Program and described the procedures utilized in the evaluation. This concluding section briefly summarizes the report content and discusses the recommendations derived from 1974-1975 evaluation results.

The RBS program has been developed, implemented, and tested as a result of the National Institute of Education's initiative in sponsoring Experience-Based Career Education. The program provides secondary school students with cognitive skills, career experiences, and personal perspectives which aid in the selection and pursuit of adult life goals. Three principal instructional components are employed to achieve the program goals; they are Career Exploration and Specialization, Career Guidance, and Basic Skills. Students participate in activities conducted at the sites of various community resources and at a central facility within a large urban high school. The 1974-1975 school term was the third implementation year for RBS Career Education.

Five groups of students were involved in the program evaluation. Two of these, E1 and C1, were experimental and control groups randomly selected for the 1974-1975 program. The E2 and C2 groups were experimental and comparison groups which had been non-randomly selected for the previous year's evaluation and returned for the current year. The final group, E3, was designated to accommodate new students selected during 1974-1975 to replace program dropouts. The two experimental groups

represented students in the program for their first and second years. The two control groups represented students enrolled in the high school curriculum during the same time, thus enabling the comparison of program and non-program outcomes. The third experimental group was used only in descriptive analyses. In all, there were 259 experimental students and 109 comparison students involved in the program evaluation.

The composition of these student groups was analyzed with regard to a series of demographic, aspirational, and achievement characteristics. The groups were found to be similar in most respects.

The bulk of the students were eleventh graders with smaller representations from the ninth, tenth, and twelfth grades. There were fewer males than females and fewer Whites than Blacks in the student samples.

The most popular reasons for applying to the RBS Career Education Program were to find out about careers, to receive job training, to receive counseling about what to do after high school and to get help in finding a job.

Students depicted most parents as having some high school training or a high school diploma. Most fathers were indicated to be skilled or semi-skilled workers. The largest group of mothers were in the homemaker category. Regarding the students themselves, a large majority planned to graduate from high school. After that, most anticipated attending a four-year college, full-time employment, or vocational - technical school. Specific occupational aspirations were varied, but many suggested the

use of further training and some entrepreneurial interest. In general, the plans indicated by students exceeded the ambitions reportedly realized by their parents.

In terms of academic achievement as measured by standardized tests of basic skills, the average grade equivalents ranged from the sixth through the ninth grade level. Such averages are well below the desirable levels as they are expressed by national norms.

These descriptions of student samples included all students who had been involved in the evaluation throughout 1974-1975. Another contingent of students was not represented because they dropped out of the student groups during the course of the year. This attrition phenomenon was studied separately, and it yielded interesting findings.

Experimental group attrition was found to be much lower during 1974-1975 than in previous years. This was probably due to the required pre-enrollment sessions which were introduced into the program application process.

The school dropout rates for experimental group members were significantly lower than the rates for control and comparison groups. This finding suggested that exposure to the program may affect school dropout trends.

It was observed that group attrition early in the year was substantial, particularly among the experimental groups. This suggested that actual experience in the program may have differed from the expectations generated during the recruitment process.

Finally, analyses comparing the retained and eliminated students on a series of characteristics failed to isolate any consistent factors

related to attrition. These results suggested the need for further study of the students involved in attrition using a broader selection of variables.

The samples of eliminated students included in the attrition study were not used in analyses of student affects. The later analyses focused on the two experimental and two control groups who participated in the evaluation throughout the year. These groups were administered a series of instruments on a pretest-posttest schedule in order to measure student performance. The instruments were as follows:

1. Career Maturity Inventory (CMI)
2. Career Attitude Scale (CAS)
3. Self-Directed Search (SDS)
4. Assessment of Student Attitudes Scale (ASA)
5. Berger Acceptance of Self Scale (BASS)
6. Comprehensive Tests of Basic Skills (CTBS)

An additional instrument, the Student Demographic Data Questionnaire (SDQ) was given once to gather demographic, background, and personal planning information.

The instruments provided student performance scores related to the three areas of program emphasis: career skills, life skills, and basic skills. Within each of these areas, hypotheses were constructed regarding growth over the year within the experimental groups and comparative performance levels at the end of the year between the experimental and control groups. The hypotheses were as follows:

Career Skills.

1. Experimental students will acquire increased mastery in career knowledge.

2. Experimental students will acquire significantly greater mastery in career knowledge than control students in a traditional high school.

3. Experimental students will acquire increased career maturity.

4. Experimental students will acquire significantly greater career maturity than control students in a traditional high school.

Life Skills.

5. Experimental students will acquire increased positive attitudes toward learning environments.

6. Experimental students will develop significantly more positive attitudes toward learning environments than control students in a traditional high school.

7. Experimental students will acquire increased positive attitudes toward self.

8. Experimental students will develop significantly more positive attitudes toward self than control students in a traditional high school.

Basic Skills.

9. Experimental students will acquire increased mastery in basic academic skills.

10. Experimental students will acquire significantly greater mastery in basic academic skills than control students in a traditional high school.

Within each major area of intended program effect there were two categories of hypotheses. One treated gains within the experimental groups (E1 and C2); the other was concerned with the performance of the experimental groups relative to the control group (E1 vs. C1 and E2 vs. C2).

Each hypothesis was tested using both first year and second year student data. The E1 and C1 groups represented first year effects; the E2 and C2 groups represented second year effects. The hypothesized effects were tested through standard statistical procedures including t tests, chi-square analyses, and analyses of variance and covariance.

Preceeding the actual testing of hypotheses, analyses of data representativeness were performed for the randomly selected groups (E1 and C1) in order to estimate the effects of attrition and testing absence on the final data pairs. These analyses indicated that the final groups were representative of the initially drawn groups in all respects but grade level. The average C1 grade level was found to be higher than expected. This finding necessitated changes in the analysis plan to include stratification for E1 vs. C1 comparisons and to exclude analyses of covariance from the plan.

The RBS Career Education program hypothesized student effects in the areas of career skills, life skills and basic skills. Altogether, ten hypotheses were tested using the procedures outlined above. The results of these tests are summarized for each area.

The career skills area was represented by hypothesized development in career knowledge and career maturity. Each of these two career skills was tested in four ways: first year experimental group growth (E1), second year experimental growth (E2), first year comparative performance (E1 vs. C1), and second year comparative performance (E2 vs. C2).

In career knowledge both experimental groups demonstrated significant growth over the course of the year. In the second year,

this growth reached a magnitude sufficient to produce a significant superiority of the experimental students over their comparison counterparts.

In career maturity there was no evidence of significant development within the experimental groups. However, due to control group losses in maturity over time, there was evidence of significant first and second year experimental group superiority at the end of the year.

These results clearly supported program effectiveness in the career knowledge component of career skills. In the career maturity component experimental growth was not demonstrated, but control group regression resulted in significantly superior performance by the experimental groups.

The life skills area was represented by hypothesized development in attitudes toward learning environments and in self-concept. Effects in each of these representative life skills were tested within the experimental groups and comparing the experimental groups with the control groups.

Both first year and second year experimental students showed significant increases in attitudes toward learning environments over the year. The experimental students' posttest levels were also found to be significantly higher than the control students' scores.

Regarding perception of self, the two measures employed yielded inconsistent results. For the experimental groups, changes in perceived competency did occur, but self-concept did not increase. In experimental vs. control comparisons, while second year experimental students demonstrated superior self-concept, other tests of intended effects produced divergent results.

These life skills results strongly supported the program's efficacy in learning-related attitudes. However, the measures of perceived competency and self-concept were found difficult to interpret. Although they offered some support for the program, it is apparent that further research is required to assess its meaning.

The basic skills area was tested using portions of a standardized achievement battery. Again, growth within the experimental groups and comparative experimental-control development were hypothesized.

Both first and second year experimental students showed some significant growth over the year, but not in all areas tested. Comparative analyses did not indicate significant superiority of the experimental students over the controls in any test employed. Thus, the experimental program was not demonstrated to offer advantages in the provision of basic skills instruction.

A series of recommendations was derived from the results of the 1974-1975 RBS Career Education Program evaluation. These recommendations are drawn from information presented in the sections on attrition and results. They are listed in the same order as the supporting information appears in the report, rather than according to any perceived priority.

RECOMMENDATION 1. Continue the use of required pre-enrollment sessions during the application process. The substantial reduction in program dropout rates compared with previous years is very likely a result of these sessions being introduced this year. Students were required to take the evaluation pretest battery and participate in program activity selection sessions before they could qualify for

enrollment. This apparently weeded out the "casual" applicants at an early stage, reducing the problems associated with attrition.

RECOMMENDATION 2. Investigate differential experimental group vs. control group school dropout rates in future years. The significantly lower rate of school attrition observed among the experimental groups this year suggests a previously unsuspected effect of the program. This observed phenomenon should be investigated in greater depth with future program implementations where experimental and control group designs are available.

RECOMMENDATION 3. Review the adequacy of recruitment information with regard to its completeness and its representativeness of the program as it actually operates. The relatively high rates of early attrition from the program, but not from school entirely, suggested that actual experience in the program may have differed from the expectations generated during recruitment. The materials and procedures responsible for these expectations should guaranteed for maximum feasible accuracy and completeness. Also, it should be assured that the promises made during recruitment are matched by faithful implementation of the planned program.

RECOMMENDATION 4. Continue to study the characteristics of program attrition. The present analyses were unable to capture consistend differences between students who were retained in the program and those who left during the year. On the positive side, these results demonstrated that attrition was not accounted for by the demographic, background, and achievement variables represented. This eliminates population subgroup

discrimination as an explanatory factor. On the other hand, these results mean that other presently unknown factors were having an influence. It should be attempted to uncover these factors. This will require research using a broader range of variables.

RECOMMENDATION 5. Continue to encourage the use of randomized group designs in future evaluation efforts. The randomized group design used as a component of the present evaluation was successful in meeting both the practical and technical requirements. The administrative difficulties involved were solved and students were selected for the program with fairness to all. Group attrition was found to not impair the integrity of the design. Such success may not be found in every future attempt, but the present study serves as an example that it can be done well.

RECOMMENDATION 6. This evaluation strongly supported program effectiveness in the career skills area; one of the measures used, "SDS congruence," should be investigated further. The SDS results were not consistent with the other results obtained. It is suspected that this inconsistency is due to the SDS instructions, which call for listing occupations considered including those "daydreamed" about. This unfortunate wording choice may have artificially decreased congruence by introducing fantasy choices which were then compared with realistic assessments. This would constitute a serious internal validity threat to measured congruence. Resolution of this issue requires further experimentation with the SDS instrument.

RECOMMENDATION 7. The evaluation findings strongly supported program effectiveness in the life skills area; the results also indicated that the role of self-concept needs to be studied further. The self-concept outcomes did not follow the trend established by other attitudinal measures. Except for second year experimental students, all groups declined in self-concept over the year. Experimental group final levels were higher than control group scores as a result of differential regression. These findings suggest significant developments in self-concept during the secondary years.

Results from the SDS perceived competencies were likewise very interesting. The pool of assignable competence was empirically stable at a level far under the theoretical maximum. Increases in one category were accompanied by decreases in another, balancing the total scores. Large shifts among the categories occurred, apparently moving toward realism in perception. These results require additional research to interpret their meaning.

RECOMMENDATION 8. Program procedures and materials should be reviewed to assess the adequacy of basic skills presentation. Although students in the program gained in basic skills, their performance levels were not superior to those evidenced by control students. Any suspected problems related to basic skills presentation should be investigated, and a plan to solve them should be developed.